

DOCUMENT RESUME

ED 199 815

EA 013 183

TITLE Developing Instructional Materials for Productive Skills. Report of a Study Group Meeting (Jakarta, Indonesia, October 2-17, 1979).

INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Bangkok (Thailand). Regional Office for Education in Asia and Oceania.

PUB DATE 80

NOTE 73p.; APEID (Asian Programme of Educational Innovation for Development) Study Group Meeting on Developing Instructional Materials for Productive Skills.

AVAILABLE FROM UNIPUB, Box 433, Murray Hill Station, New York, NY 10016.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.

DESCRIPTORS *Curriculum Development; Developing Nations; Foreign Countries; Instructional Materials; Material Development; National Programs; *Vocational Education

IDENTIFIERS Asia; Indonesia

ABSTRACT

In October 1979, representatives of six of the twenty member nations of the Asia Programme of Educational Innovation for Development met in Indonesia to discuss formulation of guidelines for developing instructional materials for teaching productive skills. This report on that conference begins with comments on experiences in materials development in the participating countries: the Democratic Republic of Afghanistan, India, Indonesia, Malaysia, the Socialist Republic of Viet Nam, and Sri Lanka. A description follows of the five Indonesian vocational educational institutions visited by conference participants for observation of the implementation of skill education curricula. The third section of the report presents the results of group analyses of the materials development experiences common to several countries or unique to particular countries. These analyses concentrated on three areas: the concept and objectives of skill education, approaches to skill education, and instructional materials. As a result of these sessions, the conference developed guidelines for materials development, which are presented in the final section of the report. (PGD)

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ASIAN PROGRAMME OF EDUCATIONAL INNOVATION FOR DEVELOPMENT **APEID**

Developing Instructional Materials for Productive Skills

Report of a Study Group Meeting

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Bangkok, 1980

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APEID Study Group Meeting on Developing
Instructional Materials for Productive
Skills, Jakarta, 2-17 October 1979.
*Developing instructional materials for
productive skills; report.* Bangkok, Unesco,
1980.

71 p. (Asian Programme of Educational
Innovation for Development)

1. INSTRUCTIONAL MATERIALS - ASIA. 2. SKILL
DEVELOPMENT - ASIA. I. Unesco. Regional Office
for Education in Asia and Oceania, Bangkok.
II. Title. III. Series.

371.307 8
607



Developing Instructional Materials for Productive Skills

Report of a Study Group Meeting
Jakarta, Indonesia, 2-17 October 1979



UNESCO REGIONAL OFFICE FOR EDUCATION IN ASIA AND OCEANIA
Bangkok, 1980

DEC 4 1980

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Unesco Regional Office for Education in Asia and Oceania
P.O. Box 1425
Bangkok G.P.O.
Bangkok, Thailand

Printed in Thailand

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INTRODUCTION

Background

Curriculum development is one of the areas of innovation included in the work plans of the Asian Programme of Educational Innovation for Development (APEID). Since the inception of APEID, a number of workshops have been organized in this area to enable representatives from member countries to exchange their experiences in the development of curriculum and materials in their own countries, to identify common problems and issues, and to generate possible ways and means to deal with the problems. In December 1978, an interdisciplinary study group meeting to explore the current efforts of member countries in developing instructional materials and educational aids in the areas of curriculum development, teacher education and science and technology education was organized at Udorn Thani, Thailand.

Realizing the importance of skills development as part of the general education curriculum, and in the light of experiences gained in the above-mentioned activity and other previous activities carried out during 1975-1977, the Asian Centre of Educational Innovation for Development (ACEID) organized a study group meeting on developing instructional materials for productive skills from 2 to 17 October 1979 in Jakarta, Indonesia. The focus of the meeting was on the development of guidelines for developing instructional materials relating to productive skills.

Objectives

The specific objectives of the meeting were:

1. to analyse views and programmes on skill development in the participating countries, in both formal and non-formal education settings;
2. to examine exemplar materials in skill development brought by the participants, and the strategies used in developing and using the materials;
3. to review guidelines on the production of instructional materials developed at the previous study group meeting with special reference to their relevance for skills development, in formal and non-formal education; and
4. to suggest guidelines for developing instructional materials relating to productive skills.

Participation

Nine participants from six member countries attended the meeting: one each from Afghanistan, India, Malaysia, Sri Lanka, two from the Socialist Republic of Viet Nam, and three from Indonesia. In addition, there were six observers from Indonesia representing various units within the Ministry of Education and Culture, who actively participated in the meeting. The ACEID was represented by a curriculum specialist from the Unesco Regional Office for Education in Asia and Oceania, Bangkok.

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The list of participants is presented in Annex II.

Inauguration

The Meeting was inaugurated by Dr. Setijadi, Chairman of the Office of Educational and Cultural Research and Development (BP3K) of the Ministry of Education and Culture, Indonesia. Dr. Setijadi extended his warm welcome to the participants, stressing the significance of the Meeting for the development of skills education curriculum in the educational system. Mr. F.J.C. Pala, Deputy Director/Programme Specialist, Unesco Regional Office for Science and Technology for Southeast Asia, Jakarta, delivered his welcome address, hoping that the meeting would achieve its objectives. Dr. Thamrong Buasri of ACEID conveyed a message from Mr. Raja Roy Singh, Director of the Unesco Regional Office for Education in Asia and Oceania, Bangkok, and explained the background and objectives of the Study Group Meeting.

Officers of the meeting

The Meeting elected a chairman, a vice chairman and two rapporteurs. Names of the officers for the meeting are in Annex III.

The participants divided themselves into two groupings, one on the synthesis of experiences and the other on the preparation of guidelines, each consisting of three groups. The list of group members of the two different groupings are found in Annex IV.

Activities of the study group meeting

In their deliberations, the participants undertook six activities. They are:

1. Presentation and discussion of country reports of experiences on the development of curriculum and instructional materials for skills development;
2. Collation of highlights of experiences in developing curriculum and instructional materials by participant(s) of each country;
3. Study visits to institutions implementing skill development programmes in both formal and non-formal education;
4. Preparation of synthesis of experiences in developing instructional materials for productive skills;
5. Review of the guidelines on the production of instructional materials developed at the previous meeting; and
6. Preparation and testing of guidelines for developing instructional materials for productive skills.

Toward the end of the Meeting the participants prepared a draft report of the Meeting which was then discussed and adopted with some modifications in the closing session. This document is the final report of the Meeting.

Chapter I

HIGHLIGHTS OF EXPERIENCES IN THE DEVELOPMENT OF INSTRUCTIONAL MATERIALS

It has been observed that systematic approach in the development of instructional materials has not received enough attention in most of the countries in this region. It is felt that as the trend of education now is shifting from teaching to learning, the development of instructional materials should follow a more diverse approach so that the curriculum can be implemented more effectively.

Recently, the attention of international and national agencies to produce skill education has focused on the importance of instructional materials in formal and non-formal education. In this Study Group Meeting the experiences of the six participating countries in developing instructional materials for productive skills in formal and non-formal education were presented in plenary sessions and group discussions.

The highlights of experiences of the member countries are as follows:

AFGHANISTAN

After the great Saur revolution which took place in April 1978, the Ministry of Education of the Democratic Republic of Afghanistan has planned an extensive educational reform. The reform aims at providing education for all people without any discrimination, with emphasis on the eradication of illiteracy which looms large in the country (more than 90% illiterate) and on developing the existing economy.

The present educational system consists of 8 years elementary education, 4 years secondary education and 4 years university or higher education. At the secondary education level there are two types of secondary schools: academic school and vocational school.

In the past, the majority of students who graduated from high schools could not find employment and were not able to perform any manual work in the community. This was due to the lack of training in skills which was not included in the curriculum. In view of the past experiences and with the aim to promote the economic standard of the people of the country, the new government has stressed the importance of developing productive skills in students at all levels of education.

Concept and objectives

Skills training has been conceived as an essential aspect of general education. The emphasis is on practical and functional learning activities which would facilitate manual skills and would enable students to undertake manual work which are performed in their society.

In addition to the above viewpoint, skill education which is considered as an integral part of general education will aim at the development of creative thinking, self expression and personality and character as a whole. To achieve this objective, the use of academic subjects like science and mathematics as facilitators of skill training has been emphasized.

Approach

There are both formal and non-formal education programmes for skill education. In the formal system of education, arts and crafts are taught in grades 1 to 6 for 3 to 4 periods per week, whereas vocational subjects are offered in grades 7 and 8 for 4 periods per week. The vocational subjects comprise such activities as woodwork, home sciences, metalwork, cooking, sewing, gardening, etc.

At the secondary level, particularly in the vocational schools, several types of trades are being taught, such as engineering, electrical technique, commerce, agriculture, metalwork and woodwork.

The non-formal education programmes provide an opportunity for students to participate in activities which are already performed by the people in the community. They are, for example, weaving (carpets and rugs), bees keeping and silk worm rearing.

Programme and method

Since the reform in education is still in its initial stage, there is no major programme or project which is unique in itself except the regular courses which are incorporated in the curriculum. However, mention should be made with regard to the general features of the curriculum. They are as follows:

First is the emphasis on active learning with the traditional role of the pupil as a passive receptacle for whatever content the teacher chooses to put in, being replaced by the new role of the pupil as an active participant in the organization and progressive shaping of learning experiences.

Second is the emphasis on concepts and ideas in place of the traditional stress on "bare facts". In the new programmes pupils are encouraged to think for themselves and to explore the broader significance and limitations of the studies.

Third is the emphasis on practical and functional learning activities.

Fourth is the emphasis on relating education to the social and economic development of Afghanistan.

Fifth is the emphasis on motivating the child toward continuing learning throughout his life.

Instructional materials

In Afghanistan the Curriculum and Textbook Department is responsible for developing instructional materials, like textbooks, maps, charts and lesson plans for the schools. The usual steps undertaken are as follows:

1. Materials shall be written by the appropriate project section in light of the new objectives of education and in conformity with the approved course of study.
2. After writing the material shall be presented from time to time to the appropriate committee, for discussion and review, working within their academic and professional capabilities and taking into consideration the principles of textbook writing methodology.

3. In most cases, it would be desirable for members of a committee to evaluate the materials, however, in exceptional cases a majority of opinion shall be accepted. Each review committee shall have a chairman and vice chairman.
4. The Committee shall record its opinions in the form of a decision. All written corrections in each page of the book shall be signed by at least two members of the committee whose designations shall also be identified.
5. The appropriate section of the project shall test the materials in school selected by the Ministry of Council after receiving the written opinion of the committee.
6. The entire text shall be tried out.
7. In addition to project trial schools, one regular school shall be selected for undirected trial testing of materials. In these schools, teachers shall first be introduced to the content of the programme and methods of teaching it and given preliminary guidance. Then the texts and teachers' guide shall be distributed and used on an experimental basis. During the school year, teachers of these schools shall be supervised by members of the project. At the end of the school year, the results of the work shall be evaluated in the usual way.
8. The conduct of the trial testing shall be in accordance with the planned programme and supervised by Afghan and foreign members of the appropriate section. Members shall make necessary notes from time to time and shall evaluate the trial testings from their point of view.
9. In addition, the research section shall oversee the trial testing and shall make appropriate professional evaluation whenever necessary.
10. The classroom teacher shall submit to the project committee detailed comments on each separate chapter of the book.
11. The Headmaster/mistress of the school shall make occasional inquiries into the progress of the trial testing and shall submit detailed and substantial opinions.
12. The appropriate school inspector shall make a special examination and inspection during his rating of teachers' performances, and shall submit pertinent comments on each occasion.
13. The Deputy Director for instruction of the Directorate of Education shall check on the progress of the trial testing at least once a month and shall submit his opinions on each occasion.
14. The General Director of Education shall make occasional inquiries into the progress of the trial testing and shall submit his opinions to the project committee at the end of the year.
15. All opinions and evaluations shall be presented in writing and shall be officially compiled in separate files.
16. After trial testing, the book shall be presented once more to the review committee.

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17. After studying the opinions and results of the evaluation, the review committee shall make necessary corrections of the book according to the findings and shall submit their final and conclusive opinions in writing to the project committee.
18. The book shall be submitted to the Afghan member of the Steering Committee, along with the file of related documents and a comprehensive and detailed recommendation.
19. In writing the recommendation, the first opinions of the Committee shall be summarized and the second opinions shall be quoted in full.
20. The important parts of the opinions of classroom teachers, heads of schools, school supervisors, Deputy Directors and General Directors of Education shall be quoted.
21. The Director of the Project and the President of the Primary Education Department shall add their opinions to the recommendations and present them at the Steering Committee meeting.
22. After approval and confirmation by the Steering Committee and authorization by the Minister, a final copy of the book shall be typed in four copies.
23. Two copies of the final copy, certified by appropriate members of the project, shall be sent to the Department of Compilation and Translation for printing.

In the actual practice the "twenty-three steps" were never implemented beyond a general application of steps 2 and 3 and a procedural adherence to steps 19, 21, 22, and 23.

INDIA

Manual work has been considered as a part of education for a long time although the system was not structured. It was in the year 1966 that the Education Commission recommended the introduction of work experience as an integral part of all education at the school stage.

Following this, several states introduced work experience in the school curriculum. In the year 1977, the school curriculum was reviewed and instead of work experience, the Gandhian concept of Socially Useful Productive Work (SUPW) was given the central place.

Concept and objectives

SUPW is considered as an educational manual activity contributing towards the total development of the learner's personality. This includes the development of the child as an efficient worker with a sense of commitment to the society and personal fulfilment. This would mean that the child will participate purposefully and meaningfully in manual activities and will produce goods and services which are useful to him, to school and to society. The objectives of the programme are as under:

- a) To prepare pupils to practise and perform manual work individually and collectively;
- b) To acquaint children with the world of work and services to the community and develop in them a respect for manual workers;

- c) To develop a desire to be useful members of the society and contribute their best to the common good;
- d) To inculcate positive attitudes of team work and socially desirable values like self reliance, dignity of labour, tolerance, co-operation, sympathy and helpfulness;
- e) To help children to understand the principle involved in various forms of work; and
- f) To lead children to participate increasingly in productive work as they proceed from one stage of education to another and, thereby enable them to earn while they learn.

Approach

1. Formal education

The work in productive skills are varied, depending on the local needs and facilities available. Therefore, it is not desirable to prescribe a uniform programme for this curriculum area in all the schools as is the practice with other subjects. The main areas to which work should relate include:

- a) health and hygiene;
- b) food;
- c) shelter;
- d) clothing;
- e) culture and recreation; and
- f) community work and social service.

For SUPW, every student is supposed to devote, on an average, 8 periods a week at the primary (I - IV/V), middle or lower secondary (V/VI - VII/VIII) and secondary stage (VIII/IX - X) and six periods a week at post secondary stage or about 20 per cent of the total school working hours. This area of study has been given a status of a subject for the award of certificate at the end of class X, subject to the condition that internal evaluation is conducted at every stage.

For effective implementation of SUPW activities, operational planning is required on the following items:

- a) Community survey:
 - (i) Natural resources;
 - (ii) Local resources of learning;
 - (iii) Local materials of economic importance; and
 - (iv) Local technology to perform different kind of work.
- b) Identifying internal resources.
- c) Identifying community resources.
- d) Choosing a project:
 - (i) Major area;
 - (ii) Nature of project; and
 - (iii) Project size.
- e) Arranging of work-items in sequence.

2. Non-formal education

The programme of non-formal education for skill development is generally restricted to technical and agricultural areas and has been practiced for the last several decades specially in rural setting. The

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main aim of such programme is to prepare a farm boy who can establish himself as a successful full-time self employed farm operator and responsible citizen.

Instructional materials

Teaching tools like Teacher Guides, Handbooks, Doing-Learning Type of Materials and Curriculum Guides have been published in agricultural and technical areas by several organizations on a limited scale. The NCERT has developed two important documents entitled "Sample Curriculum Units in SUPW" and "Developing SUPW Curriculum and Implementing the Programme". The Central Board of Secondary Education has also published a document entitled "SUPW - Guidelines for Teacher" which discusses in detail about this curriculum area. The document on implementation gave a format for doing-learning units which includes the following items: (a) Class; (b) Area; (c) Sub-area; (d) Title of the project; (e) The need and scope of the project; (f) Specific objectives; (g) Organization and management of the project; (h) Exploration/Experimentation; (i) Sequence of operation; (j) Expected outcomes; (k) Ramification into other school subjects; (l) Linkage with day to day living; (m) Evaluation by the teacher, the pupil and the community; and (n) Suggestions for follow-up work at home or in the community.

The NCERT has developed doing-learning type of instructional materials for several productive skills but not yet published. It includes activities of self expressional type, paper work, collection of materials, card sheet and cardboard work and clay modelling for primary students. For middle or lower secondary students, the instructional materials for activities relating to sheet metalwork, electricity, tie and dye printing, the silk screen printing process, block printing, carpet weaving, batik cloth, leather work and fruit and vegetable preservation have been developed. Similarly, materials for Home Science and Agriculture based activities have been developed for secondary students.

Instructional materials for productive skills for drop-outs have not received proper attention. However, some literature in agricultural and technical area is available.

Some innovative programmes

The Regional College of Education, Bhubaneswar, which is an integral part of the NCERT has prepared a Handbook on SUPW in school especially in agricultural area which is the first of its kind, and can be considered as an innovation combining education with saleable skills and offering the courses along with general education i.e., under one roof is an experiment which is tried for the first time at the post secondary stage in the country. Another innovation is the starting of farm science centre which is grass-root level institution designed and devoted to importing need based and skill oriented short and long-term vocational training courses to the agricultural clientele.

Feed-back

A study conducted by the NCERT on SUPW as it is practised in some selected institutions reveals that agriculture based activities followed by spinning, weaving, paper work, etc., are very popular.

INDONESIA

Concept and objectives

1. Concept of skill education

Skill Education as part of the general education programme is concerned with the development of attitudes and general capabilities to deal with practical work. This concept of Skill Education stresses the need for integrating principles learned in other subject areas such as science, mathematics, etc., in the development of these attitudes and capabilities. Skill Education in the field of agriculture, for example, should be designed to link the principles learned in Botany with their practical use in the effort of promoting agricultural activities. In other words, Skill Education as part of general education is meant to produce thinkers who are able to work and workers who are able to think.

The afore-mentioned concept of Skill Education is somewhat different from that of skill training which puts emphasis more on the mastery of specific techniques within a particular area. Skill training in the field of agriculture, for example, is directed more toward practising specific skills in farming, which does not conform to the concept of Skill Education described above.

2. Objective of skill education

Skill Education is intended to equip the learners with functional skills and attitudes which enable them to work and participate more productively in the development of the society, the results of which would be beneficial for both individuals and society.

Approach

Skill Education is provided in both formal and non-formal education settings.

1. Formal Education

Skill Education is taught in primary, Junior Secondary and Senior Secondary Schools. It covers several areas - home economics, agriculture, handicraft, metalwork, woodwork, automotive skills, electronics, and social services. In reality each school can select certain areas of skills for students to choose, in accordance with the availability of teachers and facilities.

This skill education is given in all grade levels, from grade 1 through 12. In addition, a new programme called the Terminal Skill Education Programme is being developed in the Development School Projects after the end of Elementary School, Junior High School and Senior High School.

Some schools have specialized teachers whereas other schools have to use teachers from other subject areas to teach skill education.

2. Non-Formal Education

Skill Education in the non-formal setting takes several forms, among which are Learning Centres (PKB) organized by the Directorate General of Out-of-School Education, Youth and Sport, Industrial Vocational Training Centre (PLKI) organized by the Ministry of Manpower, and Karang Taruna organized by the Ministry of Social Affairs. This skill education covers several areas such as electronics, woodwork, metalwork, ceramics, wood-carving, handicraft, etc. An effort has been made by these separate ministries to work together in organizing this type of skill education programmes.

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In General, there are three levels of programme - basic level, skilled level, and advanced skilled level. This skill education is provided for the people representing wider range of ages. In most regions, teaching-learning activities are carried out in village halls, family houses, or school sites.

Instructors consist of members of the community as well as those who have been sufficiently trained in certain areas of skill development.

Some innovative programmes

1. Development school project

The Development School consists of 5 years of Primary School, 3 years of Junior High School, and 3 years of Senior High School. Skill education is taught as one of the subject areas.

The objectives of skill education are to develop attitudes and general capabilities of the students to cope with practical problems, and to equip the students with functional skills required by the world of work.

There are three types of skill education programmes, namely, core programmes, elective programmes, and terminal programmes, which are intended for three different kinds of target population. The core programmes are supposed to be taken by all students in all grade levels. The elective programmes are given to students at Grades 10 and 11 whereas the terminal programmes are intended for students who do not plan to pursue further studies at a higher level after completing Primary School, Junior High School, and Senior High School.

A system of modular instruction is adopted as the teaching-learning strategy at this school. In other words, the instructional materials for skill education consist of a set of modules for students to learn, accompanied by a Teachers Guide.

The development of a module is conducted through two main stages, that is, the designing of a blue-print and the writing of the module itself. In the process of writing the module, a module writer makes a first draft of the module to be presented for sanctioning by experts in the subject area concerned. After that, the module is tried out on students of a particular grade for which the module is meant. Based on the feedback obtained from the try-out, the module is then revised by the writing team.

The problems faced in the development of modules include among others, technical problems (difficulty in choosing the language suitable to the reading level of the target students) and organizational problems (lack of full-time writers).

2. Learning centres (PKB)

PKB (Pusat Kegiatan Belajar) is an organization of Non-Formal Education under the Directorate General of Out-of-School Education, Youth and Sports of the Ministry of Education and Culture.

At PKB people can learn many kinds of skills, such as radio and TV repairing, car repairing or mechanics, ceramic making welding, woodwork, etc.

The objective of the skill training at PKB is to give one or more skills to people so that they can work and increase their personal income.

The target population of PKB is people who need skills, particularly those who are no longer in school as well as those who are unemployed.

The procedures for developing curriculum and programme of activities at PKB so that the teaching-learning process can be carried out are as follows:

1. Assessment of the learning needs of the people;
2. Assessment of the available learning resources; and
3. Mobilization of the resources to meet the needs.

Here is an example of instructional programmes on welding.

Step 1, about 1 month for 10 hours per week, pupils learn about the equipment for welding, including the maintenance.

Step 2, about 1 month for 10 hours per week, pupils assist the instructors doing the jobs.

Step 3, about 1 month for 10 hours per week, pupils do the jobs by themselves.

After three months, the pupils must take the examination, and if they pass the examination, they will get a certificate.

MALAYSIA

Concept and objectives

Malaysia, as a developing country has set manpower training as one of the priorities in her development plans. It has been the national policy of Malaysia to expand the supply of skills at all levels to meet the manpower need of the country's industrialization programmes and expanding economy, and to attract foreign investment.

There are differences in approach regarding productive skill training/education between the Ministry of Education and some agencies outside the Ministry. The Ministry of Education considers skill education as an integral part of an overall system of education. As such general education is included for the development of personality and character, and to foster the capacity for understanding, judgement, self-expression and adaptation to varying environment. The training is also broad-based to give greater flexibility and resilience to trainees for adjustment in the job market. On the other hand, some agencies outside the Ministry of Education provide training on narrow skills. Theoretical knowledge is limited to only those parts required for the performance of the skills.

Approach

All the skill education programmes under the Ministry of Education at the moment are formal. Under the Ministry, skill education with reference to general education can be categorized into levels and areas.

- (i) Pre-vocational studies at Lower Secondary Level. Students are required to select one elective subject from Industrial Arts, Home Science, Commerce and Agriculture in addition to the core general studies. The objective is to expose students to productive skills useful in their everyday life and to develop attitude and interest in technical and vocational studies.

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- (ii) Technical studies in Upper Secondary Technical Schools. Students study one or two technical subjects from engineering, agriculture, or commerce. The objective is to prepare students for higher technical studies.
- (iii) Vocational studies in Upper Secondary vocational schools. Students study engineering trades, agriculture, commerce and home science. The objective is to equip school leavers with employable skills.

Non-formal education for productive skills are provided by agencies outside the education system for out-of-school youth. Some of the trainees are sponsored by employers and are trained according to the particular need of the employers. There are also private schools. Some firms also conduct their own training for their own particular need.

Some innovative programmes

The use of behavioural objectives in vocational school curriculum is one of the most significant development in vocational education in Malaysia. A curriculum is divided into units and each unit has general objectives. Each general objective is clarified by a sample of specific objectives which could be accepted as evidence of student attaining the general objective. The general objectives of the units are derived from the general objectives of the course which in turn are derived from task analysis, student ability analysis and policies and rationales regarding vocational education. The curriculum also provides guidance on content outlines, recommended activities, teaching aids and time to achieve the objectives.

Project sheets are considered as very important instructional materials in vocational education. The methodology for development of project sheets is illustrated by the table in the following page. The steps are:

- (i) Prepare a list of skills to be developed in the student according to the curricular objectives, and arrange the skills from the basic to complex horizontally in the table;
- (ii) Select projects which will provide practise of skills in the list. The projects are arranged vertically in the table from simple to complex.
- (iii) Design project sheets according to the project list; and
- (iv) Evaluate the project sheets according to their intended objectives, and also calculate the cost of materials and the time consumed.

SOCIALIST REPUBLIC OF VIET NAM

Concept and objectives

In the system of modern socialist education, it has become a common objective for the socialist schools to train the young generation to be new-type workmen and the masters of their society and to achieve an all-round development. The way to train them, therefore, has become a major specialized subject in the educational research work.

The aims and objective of the General Education School in Viet Nam are as follows:

Skills	Projects
Work piece	Grind tool bits
Parallel shaft	Marking out
Stepped shaft	Use micrometer/vernier caliper
Slender spindle	Set up work in 3 or 4 jaw chuck
Lathe centre	Facing
Ring gauge	Drill centre hole
Cup	Longitudinal turning
Taper, ring gauge	Cut shoulders
Bell punch	Turn between centres
Drill extension	Use of steadies
Irregular shape	Parting off
workpiece	Cut external taper
Screwed spindle	Use of gauges
Double screw work-	Cut chamfer
piece	Drilling
Screwed workpiece	Bore through hole
Threaded mandrel and	Reaming
mandrel nut	Bore blind hole
Screw jack	Taper boring
Lever handle	Use of face plate
Eccentric shaft and	Cut vee/square/ACME thread
bush	Cut left hand thread
	Cut double-start thread
	Cut internal screw thread
	Mating screw thread
	Cut recesses
	Form cutting
	Eccentric turning
	Eccentric boring

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- a) To train the young generation to be new-type workers and masters of the society, fully-developed workers, thus facilitating the coming reform of education;
- b) To make an effective contribution to the widely developing system of general education; and
- c) To organize students in productive labour by training them through manual work so that they may contribute to the cultural and economic development of the locality where the school is situated.

After graduation, the students can easily adapt themselves to the production centres of the society outside or they can take up further training to be skilled workers, technicians, etc.

Approach

To ensure the training of the student's working skills, general education schools at various levels in Viet Nam simultaneously put into practice two curricula:

- a) The compulsory curriculum which consists of technique, and management of economy; and
- b) The optional curriculum in which the subjects are taught in accordance with the concrete conditions of each school. Education for the sake of labour and the training of productive skills may be done through the development of the school and work for the production of social wealth and public utility.

Innovative practice

In order to achieve the above objective as well as to assist in the development of the country, the following practices have been employed:

1. Meeting the needs of the school through productive work.

To meet the urgent requirement in building the material bases of the school in order to ensure good teaching-learning situation, students are doing the following work while learning to develop certain skills:

- a) Taking part in building and repairing schools, desks, training grounds and other school facilities;
- b) Building the school's garden, workshop, growing and tending trees, repairing or making tools and equipment for studying, teaching and research work; and
- c) Cultivating of plants and livestock breeding to partially ensure self-supply of foodstuffs, in order to improve the living standards of the pupils, teachers and cadres of the schools, particularly boarding schools.

2. Solving community development problems through productive work.

This may be carried out through various means depending on the level of the school, age and sexes of the pupils. Activities which may be undertaken by students are the following: picking young plants of rice, tending cattles, growing and tending trees, preparing green manure, fighting insects, rats, breeding small animals, assembling simple machines and collecting waste and low-quality goods. The work done for local production bases (agricultural co-operatives, handicrafts co-operatives, etc.) or for the students' families should be supervised by those production bases or families.

3. Engaging in work of public utility.

This kind of productive work involves such activities as water conservation work, work relating to hygiene and prophylaxis and other major construction work.

4. Using production bases for training pupils in productive skills.

To facilitate real experiences in the world of work, many schools train pupils in working skills right in the field, factories and state enterprises. Other benefit gained through this kind of activity is that the school can take direct part in producing social wealth through co-ordination between education of pupils in productive work and production bases of society or of the school. The organization for training at production bases is usually the formation of two specialized teams, one inside the school and another outside the school. In the school each class can be divided into three or four teams, each specializing in a branch of production such as rice growing, poultry rearing, carpentry, embroidery, etc. After classes, most pupils are engaged in productive work at home or in co-operatives. To facilitate this activity, the school sets up several specialized teams for working outside the school. This kind of specialized teams consist of pupils living in the same hamlet or village but not necessarily studying in the same class.

Instructional materials

Teaching aids and tools play a very important role in education, especially in helping to ensure good co-ordination between study and practice. In Viet Nam, despite countless difficulties arising from 30 years of war, the Government of the Socialist Republic of Viet Nam attach great importance to the education of the younger generation. In order to improve the quality of education the Government pay great attention to teaching tools. These are:

- a) Teaching aids drawn from natural and local resources to be used in production bases where lessons are given to pupils;
- b) Pictures and models of adequate size giving a general or detailed description of the contents of the lesson; and
- c) Films and TV programmes.

Beside the above three main forms, pupils can visit exhibitions on economic and technical achievement, under the guidance of their teachers.

As there must be a co-ordination between study and reality of productive work, and as the training of working skills requires a great number of teaching tools, the schools have to rely on teaching means supplied by various sources, namely, the State, the school itself, the pupils, the parents, the local administration and the combined effort of teachers and pupils.

The procedures for developing instructional materials usually follow the following steps:

Printed materials

All printed materials such as teacher's guide and learning materials for pupils are developed by the Institute of Educational Science. The materials which have been developed will be submitted to the Evaluation Committee of the Ministry of Education for evaluation. Once the materials are approved, they will be published. The Inspection Committee of the Ministry of Education is entrusted the control of the production of the materials.

Developing instructional materials for productive skills

Equipment

With regard to the equipment, the Department of School Equipment of the Ministry of Education produces all main equipment for the general education schools in Viet Nam. The materials for production of equipment are provided by the Government. The Department also produces the equipment based on exemplar equipment from some other countries.

There are also equipment which are made by teachers and pupils. In this respect teachers use local material for making simple tools and equipment as their needs arise.

SRI LANKA

Being a small country with limited land and resources, Sri Lanka is faced with a heavy task of developing its economy. The problem is not only to increase production to serve the needs of all people but also to create job opportunities for them. In the recent past the number of unemployment of school leavers has increased to a large extent which demands immediate and effective measures to cope with the situation. In this connection, education has become one of the major institutions assisting the government in solving the problem.

Under the present system of education, general education comprises 5 years primary school, 3 years junior secondary school and 4 years senior secondary school. In addition, there are technical institutions which provide courses at craft level and technician level. These institutions admit students who have passed grade 8 for study at craft level for two years and those who have passed grade 10 (upper secondary level) to study at technician level for one or two years depending on the course.

Concept and objectives

Productive skills at the general education level in Sri Lanka has been viewed as both skills for self-employment and for socially productive work. This means that the training does not aim primarily for vocation but for familiarizing students with the world of work and for cultivating desirable attitudes towards work and wholesome personality so that they will become effective members of their community and of the country. Specifically, it can be said that the objectives of skill development are of two folds:

- (i) to develop skills and understanding necessary for self-employment and for servicing productive work to the community; and
- (ii) to develop attitudes and personality which are desirable for an effective member of the community.

Approach

The approach used in developing productive skills at the general education level covers both the formal and non-formal aspects of education.

In the formal school system, students are taught to be familiarized with the world of work since they enter primary school. Children in primary school will be taught simple manual skills such as home science activities, growing flowers and vegetables, and some simple handicraft work. In the secondary school, courses like woodwork, metalwork, electric wiring, mat weaving, basket weaving with fibre, etc. are offered. There are also pre-vocational study programmes which provide opportunity for secondary school students to survey the jobs in the community and to

practise skills using community facilities as training bases.

The non-formal education programmes for school leavers are organized by the National Apprenticeship Board for those who have completed some years of school education and those who passed General Certificate of Education (GCE or O. level). There are other organizations which also offer non-formal education programmes.

Programmes and methods

In the formal education programme at the primary education level, art and craft courses and courses in home science and health education are provided. At secondary level, pre-vocational study programme is being offered consisting of two major courses:

- (i) Pre-vocational studies I which offers activities such as light miscellaneous crafts, agriculture and home science; and
- (ii) Pre-vocational studies II consisting of teaching of vocations in the locality. One or two or three vocations may be selected to be taught during the full three terms of all four grades in the secondary school. A sample of vocations involved are as follows: cloth printing; lace work; repairing bicycles; poultry keeping; bee keeping; fisheries; motor mechanics; electric wiring; printing; fruit cultivation; dressmaking; concrete work; and bamboo work.

The instructional methods as currently used are those which are pupil-centred, such as group work, discovery method and project work.

The non-formal education programmes which are organized by agencies other than the Ministry of Education are:

- (i) Vocational Training Centres under the Ministry of Labour which conduct courses in welding, pitting machine, and wood-working. These courses have a vocational content and are employment oriented.
- (ii) National Youth Service Council which conduct programmes that are designed to provide education and training in socio-psychological attributes which are essential requirements for development; and
- (iii) Lanka Jatica Sarvodaya Shramadana Sangamaya which conducts programmes that are community development oriented.

Instructional materials

In Sri Lanka, the Curriculum Development Centre responsible for preparing guidelines for developing a curriculum as well as instructional materials is placed with the teachers who work with the master teachers who have had previous in-service training organized by the Curriculum Development Centre. The usual procedure in developing the materials follows the following steps:

- (i) Studying syllabus;
- (ii) Defining objectives;
- (iii) Identifying instructional methods to achieve objectives;
- (iv) Identifying instructional materials to support instructional methods, keeping in mind the availability of resources;

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- (v) Developing instructional materials by group of teachers;
- (vi) Implementing the materials; and
- (vii) Reviewing and revising the materials.

Types of materials which are being developed consist of printed materials, audio-visual materials, tools and equipment.

Chapter II

VISITS TO INSTITUTIONS IMPLEMENTING PRODUCTIVE SKILL EDUCATION PROGRAMMES

Following the participants' presentation of their countries experiences in developing Productive Skill Education curricula, a study visit was organized to five selected institutions representing both formal and non-formal education, which implement skill education programmes. The places visited were: 1) Skill Training Centre, Kebon Melati, Jakarta; 2) Centre for Courses, Karet Depan, Jakarta; 3) Technical Training Centre, Bandung; 4) Industrial Vocational Training Centre, Bandung; and 5) Development School Pilot Project, IKIP, Bandung. The purpose of the visit was to acquaint the participants with the curricula and programmes for productive skill education developed in selected formal and non-formal education institutions with special focus on the development of instructional materials. The participants observed the actual implementation of the curriculum and discussed pertinent matters with the director and the staff of each institution visited.

After visiting the Development School Pilot Project, the participants also had a chance to see the procedures in developing low cost instructional materials for science education organized under the co-operation of BP3K, IKIP (teachers college) Bandung, and the government of the Federal Republic of Germany.

The details of the visit at each institution follow.

Kebon Melati Skill Training Centre, Jakarta

Background

The centre was built in March 1977 with financial aid from the Directorate of Social Welfare, the Special Metropolitan District of Jakarta. It is a non-formal training institution which is subordinate to the Regional Office of the Ministry of Education. The centre is one of the 35 similar centres in Jakarta.

Objectives and function of the Training Centre

The objective of the Training Centre is to provide vocational training for out-of-school youths/adults from different education backgrounds so that they can acquire some basic skills essented for jobs or for self employed.

The centre is also used for community activities such as boy scout's training, religious activities and local social activities.

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Curriculum and programmes

The main programme in the centre is automotive vocational course. The other programmes are English course, sewing course and motorcycle mechanic course. The working hours of the centre are 7.00 a.m. to 9.00 p.m. from Monday to Saturday and 5.00 p.m. to 9.00 p.m. on Sunday.

The duration of training for the automotive vocational training is 6 to 8 months for basic level and another 6 months for advanced level. There are at the moment 6 groups of trainees in the centre who come for training at different times of the day.

The curriculum for the courses cover knowledge, skill and mental development. Skill is the main component of the curriculum, knowledge covers those theories related to the skill, and mental development covers those areas related to the State's Five Principles. The curriculum is developed by the Regional Office of the Ministry of Education.

Instructional materials

Development of instructional materials and teaching-learning strategies are left to the initiatives of the instructors. Instructional materials that have been developed are charts, handouts and learning notes.

Accommodation and resources

The centre receives financial support from the Special Metropolitan District of Jakarta to run the programmes. The training is free, however, the trainees are not given any allowance while undergoing training.

The centre has a total building space of 26 x 10 m consisting of an office, 2 classrooms and an automotive workshop. The main equipment are some sewing machines, two automobile engines and some basic service tools. The automobile engines are taken from abandoned vehicles. The trainees for sewing bring their own materials.

Personnel

The centre is headed by a Director. All the instructors/teachers are part-time and the number is as follows:

automechanics	-	2 instructors
English	-	2 teachers
sewing	-	1 teacher

Teaching-learning activities

As mentioned earlier, there are six groups of trainees for the automotive vocational course undergoing training at different times of a day. However, two groups of trainees can be accommodated at one time, i.e., one group studying theory while the other doing practical work. The strategy for teaching skills usually follows the approach of learning by doing. The instructors also keep a record of the topics and activities covered by each group of trainees.

Evaluation and certification

Trainees sit for an examination conducted on regional basis at the end of the course. Those who pass obtain certificates from the centres. There are also progress tests conducted by the centre during training.

Achievement

It has been reported that up to August 1979, 617 students have taken courses on automotive vocational training. For the English course there were 15 students, sewing course 88, and motorcycle course 15. Out of 617 students on automotive vocational training 296 have got certificates, and out of 88 students on the sewing course 20 students have got certificates. The English course students are not yet ready for final examination. It has also been reported that most of the trainees obtained jobs after they had finished the course. Some of them have also become self employed.

Observations and comments

Instructional materials in the centre seem to be very limited as they consist of only charts, handouts, notes and some test questions. Teaching also seems to be organized on an ad hoc basis since during the visits the group did not observe any worksheets given to trainees for skill training.

The space and resources in the centre are very limited. The automotive shops have only two old automobile engines, and possess only limited number of service and testing tools and instruments. Another problem faced by the centre is that most of the instructors are working part time and as such do not have adequate time to organize better instructional programmes and methods.

However, all the equipment and resources in the centre have been fully utilized and in spite of the limited resources the centre has been able to impart some useful skills to the trainees to enable them to look for jobs when they leave the centre.

It has been suggested that in order to overcome the limitation of resources and to provide a wide scope of training, the trainees should be sent to local garages for on-the-job training.

Contact person: The Director
Kebon Melati Training Centre
Jakarta

Centre for courses, Jakarta

Background

The Centre for courses is a non-formal vocational institute which was established in the year 1967. The institute is located right in the heart of the city, Jakarta. This Centre is managed by a foundation which in turn is directed by a Board of Directors consisting of five members.

Objectives

The main aim of this institution is to prepare labour force with necessary knowledge and skills for Indonesia's development. The Centre also arranges need based training for public and private sector organizations.

Accommodation

The institutions has in all 32 classrooms cum laboratories, two big halls for school and state examinations, lectures, alumni gatherings, meetings and parties and adequate space for office cum administration. A small but equipped publication unit is also functioning at the centre.

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Admission

Literacy and self confidence in one's own performance are considered to be the main criteria for admission to the institution. In practice the institution does not conduct any formal aptitude test for admission to the various courses. The admission is open for every one on all working days. On an average 200 people ask for registration every month. Drop-outs, junior and senior secondary students and in-service people are among those who seek admission in this institution. They pay 175 rupiah for every hour of instruction. The total number of students is more than two thousand.

Curriculum and programmes

There are at present 13 different courses in which instructions are being imparted. Eight of them fall in the area of Home Science (Beautician and Tailoring, etc.), three in Business Education, one each in Electronics and English language. The course in Book-Keeping and Accounting has received maximum popularity followed by English language. The titles of the programmes offered are as under:

- a) Hairdressing
- b) Beautician course
- c) Hair cutting
- d) Course in Beautifying the Bride/Bridegroom
- e) Putting one's hair up in a knot (Hairstyle)
- f) Promotion of Smoothness and Attractiveness
- g) Traditional Beauty Treatment
- h) The Course in Tailoring Women's and Children's Wear
- i) Book-Keeping and Accounting
- j) Typing
- k) The Secretarial Training Course
- l) Electronics
- m) English Language

The curriculum for most of the courses are designed and legalized by the Ministry of Education. A few ones have been developed by the institution under the guidance specialists and professionals to satisfy the needs expressed by the municipal business community and the citizens. For effective instruction, the curriculum has been divided into suitable units depending upon the skills required. In other words, under each course title, several sub-courses are being offered to suit the target population.

Instructional materials

For effective instruction, the centre uses tools, equipment, job sheets and books. In each vocation different kind of instructional materials and methodology are being used, e.g., English Language Course-discussion method with books; Typing Course-worksheet and type writers; Beautician course, hair cutting and knot making-use of tools and hair driers; and Book-Keeping-accounting ledgers and cash books.

Personnel

There are two full time teachers and round about 60 part time instructors who are being drawn from various sources like Government schools, business firms and factories. The management is assisted by 11 persons, administrative activities by 21 persons and maintenance of all facilities and security work are looked after by 20 persons.

Evaluation

Evaluation is conducted in the form of monthly tests, school examination and National test for standardized courses. In the Book-Keeping and Accounting course, the evaluation is carried out at the end of every unit. Successful candidates are awarded a certificate by the institution. The Government of Indonesia recognize some of the courses and people completing them successfully become eligible for Government Jobs.

Observation and comments

During the visit to the institution the study group was able to see students of tailoring course cut and stitch clothes and work with sewing machines. Similarly, typing course students were practicing on typewriters. The training in Beautician courses was being imparted in a saloon like room, and students were practicing certain skills relevant to their course on fellow colleagues. The group was happy to see several publications in the form of books developed and published by the institution for courses offered. The group was further pleased to note the discipline among the students and sincerity of management towards training of youth for meaningful and gainful employment. Regarding management, the institution spends 6 per cent of their total income on publicity of courses 2 to 5 per cent on developmental activities and on the whole runs on no profit no loss basis. The institution does not have placement facilities and feedback information.

Contact person: General Manager
Centre for Courses
Jakarta

Technical Training Centre, Bandung

Background

The Technical Training Centre (TTC) was established in 1975. It is located in the city of Bandung, West Java and is under the Directorate of Vocational Education, Ministry of Education and Culture.

Objectives

The objectives of the TTC are to provide skill training for technical school students in the neighbouring vicinity. These technical schools are known as feeder schools. Students from 2 or 4 feeder schools will receive some training at TTC. In this way all training programmes and facilities will be centralized in one place, thus opening many possibilities for improving the management and use of expensive and sophisticated equipment.

Curriculum and programmes

The curriculum as used by the technical schools is the 1976 curriculum which comprises approximately 20 per cent general subject; 13 per cent basic knowledge; 17 per cent trade knowledge; and 50 per cent skill training. It is the skill training only that is done by TTC. The other aspects of the curriculum are taught by the schools themselves. Courses offered at TTC are for 3 years or 6 months. The first semester offers common courses for all students. These common courses consist of the following four basic skill trades: bench work; sheet metal; carpentry and masonry; and electrical installation.

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From the second semester onward the students will be assigned to one of the 5 departments according to their talents and interests. Those departments are:

Mechanical Department;
Automotive Department;
Electrical Department;
Electronic Department; and
Building Construction Department.

Instructional materials

Various types of instructional materials are improvised, such as posters, charts, job sheets, and textbooks. However, job sheets could be considered as the most widely used. The instructional materials were developed by the team of instructors and were tested before wider use.

Resources

The TTC receives financial support from the World Bank in the form of building, equipment, machinery, and raw materials for training. It also receives technical assistance in the form of advisors. The salary of the staff is provided by the Directorate of Vocational Education.

In addition to the above an Advisory Committee consisting of representatives from industries, educational institutions and Regional Government has been appointed to assist TTC in its undertaking.

Personnel

At present TTC is headed by a director with full time instructors and also a number of part time instructors. There are also foreign experts who act as consultants.

Accommodation

The TTC in Bandung can accommodate 3024 students working in two shifts, a morning shift between 7.30 a.m. and 13.15 p.m. and an evening shift between 13.30 p.m. and 19.45 p.m. The maximum capacity for each department is as follows:

Mechanical Department	1296	students
Automotive Department	288	students
Electrical Department	432	students
Electronic Department	288	students
Building Construction Department	720	students

The number of workshops in each department varies from one another. They are as follows:

Mechanical Department	17	workshops
Automotive Department	4	workshops
Electrical Department	5	workshops
Electronic Department	3	workshops
Building Construction Department	7	workshops

The maximum number of one group of students in each workshop is 24. Each group is supervised by 2 instructors.

Continuous evaluation is made on the student's performance as well as on their knowledge and understanding of the subject.

Observations and comments

1. The idea of centralized training has decreased the running cost and has increased efficiency in terms of the use of space, equipment and facilities.
2. This type of training centre could also be used for developing skills for students of the general schools.
3. The tools, equipment and raw materials are adequately supplied by the centre and the quality is of high standard.
4. Finished products made by students are left without use. Some measure should be undertaken to make use of the products.

Contact person: Director
The Technical Training Centre
Jalan Pahlawan 70
Bandung, Indonesia

Industrial Vocational Training Centre, Bandung

Background

The Industrial Vocational Training Centre, Bandung, is the first of its kind in Indonesia and was established in 1954 in collaboration with the Colombo Plan. The Ministry of Manpower provided the land and the building, whereas experts, equipment, machinery and tools were supplied by the Colombo Plan. The Centre also received some grants from the International Labour Organization.

At present other centres have been established in Jakarta, Palembang, Yogyakarta and Malang. Instructors of those centres were trained in Bandung and other countries.

Objectives

The aim of the Centre is to provide skill training to those adults who are looking for jobs, and to employees of private and public enterprises. The Centre is imparting training free for those who are registered under the Ministry of Manpower. Elementary education is the minimum requirement for the enrolment. It is followed by an aptitude, medical/physical fitness and academic tests for selection purposes.

Curriculum and programmes

The Centre started its programme of primary training in 1954, and in 1956 introduced training for instructors. At present, the Centre is providing training at four different levels (Basic, Upgrading, Supervisory, and Instructors) in the vocations related to Metal Trades, Automotive Engineering, Electrical Trades, Electronics, Building Trades, and Commercial Trades. Barber and Tailoring are still on the pioneering level. Each workshop of the Centre can accommodate 16 trainees.

The curricula for courses cover basic knowledge and skill training. Pancasila Moral Education, Methodology and Psychology are included in the curriculum for the instructor training programme.

Developing instructional materials for productive skills

The curriculum is developed by the Centre, The Ministry of Manpower and experts from business enterprises or industries. The Centre also provides special training programmes on the request of the industries provided that they follow prescribed rules and regulations.

Instructional Material

The centre is equipped with old machines. In each workshop, equipment and job-sheets are provided. Some examples are the automotive and typing workshops, at the typing course, typewriters and instruction sheets for practicing, are made available to each trainee.

The development of the written instruction is left to the instructors.

Personnel

When visited, the Centre had 46 instructors for the various trades, the greater part of them had gone for training overseas.

Resources

The Ministry of Manpower finances the Centre. Therefore, the training is free. However, workers sent by industries and other government agencies are financed by their own offices. Housing and dormitories are provided for instructors and trainees who come from outside Bandung.

Evaluation and certification

Evaluation of each training is given continuously. After a unit of training has been done each trainee has to sit for a test. The final one is given after the period of training is finished. If the trainee passes the test he will obtain a certificate which will enable him to get a job. If a trainee fails the test he is not given another chance.

Observation and comments

1. The majority of the trainees are graduates from technical schools. When interviewed they responded that they do so because the industries require such a training. Therefore, the conclusion is that industries prefer to recruit workers with marketable training.

It appears that similar centres should be encouraged in other places, especially at the industrial centres.

2. To catch up with new technology and new gadgets offered by industries, the equipment of the Centre should be updated. The industries should be approached to help provide with the equipment or machines they put in the market. In this way they would also secure sort of "after sales service".

3. Compared with the Technical Training Centre (Visit no. III), the organization of this Centre is less systematic.

4. There are evidences that the Government is trying to be independent from outside assistance, though it does not reject one.

Contact person: Director
Industrial Vocational Training Centre
Jalan Jen. Gatot Subroto 170
Bandung, Indonesia

Development School Pilot Project, IKIP, Bandung

Background

The Development School Pilot Project (PPSP), IKIP Bandung is one of the eight pilot projects of the same kind set up in 1972 under the Ministry of Education and Culture. The project is now under the management of the Office of Educational and Cultural Research and Development (BP3K) in co-operation with the Teachers' College (IKIP), Bandung.

Objectives

In line with the objective of the project, i.e. to develop a new system of education relevant to the needs of both individuals and the society, the objective of skill education as part of the PPSP curriculum is to equip students with functional skills and attitudes which would enable them to work and participate more productively in the development of the society for the benefit of both individuals and the society.

Curriculum and programmes

The PPSP involves a 5-year elementary school, a 3-year junior secondary school and a 3-year senior secondary school. Up to grade IX the students follow the same programme whereas in grades X and XI there are two groups of programmes for the students to choose - one is Science and Mathematics (PALMA) and the other is Social Studies and Languages (SOSBA).

Skill education is one of the nine subject-areas taught in school from grade I through grade XI, with the allocated amount of time per week as follows:

- a) Grade I : 2 periods of 30 minutes
- b) Grade II : 2 periods of 40 minutes
- c) Grades III,
IV and V : 2 periods of 45 minutes
- d) Grades VI,
VII and VIII: 4 periods of 45 minutes
- e) Grades IX,
X and XI : 6 periods of 45 minutes

There are several areas of skill development offered by the school, namely, Home Science, Handicraft, Agriculture, Poultry Farming, Woodwork and Electronics.

Instructional materials

The PPSP develops a new teaching-learning strategy called the Modular Instruction System which is also applied in skill development. The term modular instruction in the PPSP refers to instruction conducted by means of a series of modules. The modular materials have been developed in all the areas of skill development mentioned above except poultry farming.

The general structure of each module is the same. Every module is composed of:

- a) A teachers guide-sheet;
- b) A student's activity booklet suggesting learning activities for students to achieve the learning objectives;

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- c) A worksheet which enables the student to record his or her solutions to the problems posed in the booklet; and
- d) A means of evaluating how well the student has achieved the learning objectives.

The modular system developed in the PPSP is designed to take advantage of all sorts of teaching-learning methods. During the lesson using modular system, students are actively reading through the materials, performing activities suggested in the booklet, conducting discussions in small or large groups, working on problems in the worksheet, etc. The role of the teacher in this system is to organize and manage the learning process by means of (i) preparing a proper setting for learning; (ii) supervising and helping students having difficulty in comprehending directions/performing activities suggested in the module; (iii) organizing group discussion; and (iii) conducting evaluation of each student.

The modular materials were developed by the national team for skill education consisting of among others IKIP instructors and selected PPSP teachers.

Personnel

The school is headed by a director assisted by the principal of the Primary and Junior Secondary and the principal of the Senior Secondary School.

Numbers of skill development teachers are 6 out of 30 teachers at the Primary and Junior Secondary and 5 out of 26 teachers at the Senior Secondary School. Most of the skill development teachers are those specialized and/or experienced in their own areas.

Resources

The school receives financial support from the Ministry of Education and Culture. Except for the primary school, all the students have to pay school fees (SPP) in accordance with the amount of income received by their parents.

The main facilities and equipment for skill education in the school are among others workshop and equipment for woodwork, special rooms and equipment for Home Science, Handicrafts and Electronics, and a piece of land and equipment for developing skills in agriculture.

Evaluation

Evaluation is conducted on each module as well as at the end of each quarter (for primary school) or each semester (for secondary school). The results of evaluation are used for three different purposes:

- a) for improving the modular materials as well as the learning process;
- b) for making a decision on whether or not a student can move to the next module; and
- c) for grading each student.

Observation and comments

The use of modular instruction seems to increase the effectiveness as well as the efficiency of the skill education programme taught in school. Both teachers and students showed their positive reactions to this new system.

However, it was also observed that some modules were not fully implemented as they were planned due to the unavailability of some of the supporting materials/equipment. In the light of these constraints it is suggested that in planning the activities for each module, the writer also take into account the capability of the school to provide the supporting materials/equipment.

Contact person: Director
Development School Pilot Project, IKIP
Bandung, Indonesia

Chapter III

SYNTHESES OF EXPERIENCES IN DEVELOPING PRODUCTIVE SKILL EDUCATION CURRICULUM

The reports of the participants included experiences in curriculum development and designing of instructional materials in productive skill education as part of the general education programme. After the presentation of the reports, the five study visits and the sharing of highlights of experiences in developing productive skill education curriculum in their countries, the participants were grouped according to the nature of materials to synthesise their experiences. Three groups were formed namely:

(A) Concept and objectives of skill education; (B) Approaches to skill education; and (C) Instructional materials. The list of participants in each group is in Annex IV.

The materials were examined by each group upon which the development of the synthesis was based. In synthesizing the experiences, each group identified both characteristics common to all the countries and those specific to certain countries. In addition, a number of issues and problems were identified and some possible solutions to the problems were discussed at the end of the syntheses. The group reports are presented as follows:

Group A. Concept and objectives of skill education

As interpreted by the participants of the meeting, the term 'concept' used in the synthesis embraces three important elements, namely, (i) how skill development is defined; (ii) on what basis it should be developed; and (iii) on what principle the design should be based. The objectives refer to a certain type and level of competence the learner is expected to achieve.

A. Concept on skill development

It was agreed that education in school and out-of-school should be purposeful, meaningful, productive, and should have close linkages with national developmental programmes. In this regard, educational programmes for skill development in both formal and non-formal settings should be organized to support the achievement of the above objectives.

The following generalization shows some common elements of the concept of skill education advocated by the participating countries.

1. Skill education as part of the general education programme is not meant to be a purely manual work.

In everyday life, it is not enough to only muster skills, the learner should also know the why and wherefore of each skill which he/she plans to undertake. All participating countries of this Study Group Meeting felt that skill education should not only develop manual skill, but that it should inculcate positive attitudes toward the world of work, dignity of labour, work habits, and problem-solving abilities among learners, etc.

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2. Skill education programmes, should be educative, productive, socially useful, and problem-solving oriented.

Subsequent to the concept mentioned above, in developing programmes for skill education, the following characteristics should be considered as important:

- a) educative: In planning the teaching-learning processes care should be taken that they fulfil the educational requirement. It should not only include the psycho-motor domain, but also the cognitive and affective domains.
 - b) productive: All instructional programmes should be directed toward the achievement of objectives manifested in the form of certain products and services.
 - c) socially useful: The content of instructional programmes should be framed in such a way that each learning activity should be useful not only to the individual but also to the school, and the community.
 - d) problem solving: The programmes should be so designed as to provoke thinking of the learner to enable him to carry out his task.
3. Skill education programmes should be related to other subject areas.

Although it was accepted by all that skill education is an integral part of total school education, in many cases there is a tendency to make skill education an independent and self-contained subject area. All participating countries felt that each skill education programme should have close linkages with relevant subject areas. This particular concept would be easier to apply to formal set-up.

4. Skill education programmes should be based on the basic needs and problems of individuals and society.

In planning objectives as well as contents of skill education programme it is of importance to link the activities with the basic needs and problems of both individuals and the society. These basic needs and problems may be in the following areas: health and hygiene, food, shelter, clothing, culture and recreation, community work and social service.

B. Objectives of skill development

The objectives of skill development as part of the general education programme should represent the above concept. The objectives should be made clear to those involved in the development and implementation of skill education in both formal and non-formal settings as they constitute the basis for developing the curriculum and programmes as well as the instructional materials.

The analysis of the objectives developed by the participating countries suggested that most countries share common objectives while there are objectives specific to particular countries. They are as follows:

1. Common objectives
 - a) To acquaint learners with the world of work.

This objective is important in the sense that it is meant to develop in the learners knowledge about varieties and characteristics of occupational areas in the society.

Knowledge on these various occupational areas shall place the learners in a better position to identify the kind of work which they would like to participate in upon completion of their education.

This objective could be categorized under the cognitive domain in the taxonomy of educational objectives for any educational system.

- b) To provide learners with productive skills relevant to the needs of individuals and society.

This objective means that skill education should provide opportunities for the learners to actually practise and perform the skills learned in schools as well as in other forms of educational organization.

This objective could be categorized under psychomotor domain in the taxonomy of educational objectives.

- c) To develop desire to be useful members of the society.

This objective implies that mustering skills relevant to the needs of the society as such is not enough without the desire/willingness of the individuals to really participate in the development of the society as useful members. To develop this desire within the individuals, the programmes should be so structured to motivate the learners to develop their interest in practising the skills for the welfare of the society.

This objective could be categorized under the category of affective domain in the taxonomy of educational objectives which is often neglected in the implementation of educational programmes.

- d) To inculcate positive attitudes and motivation toward the world of work, self-reliance, tolerance, co-operation, sympathy, and helpfulness.

This objective also falls under the affective domain of educational objectives which constitute major components of the goals of skill development.

The nature of this objective strengthens the idea of making skill education more educative, socially useful and productive.

2. Objectives specific to particular countries

- a) Lead learners to increasingly participate in productive work as they proceed from one stage of education to another.

The idea implied in this objective is that skill education should be imparted in sequential order to enable the learners to grasp, reproduce, and immediately apply the skills they have learned in real life situation. In this way learners may earn while they learn.

- b) Prepare learners for further studies in technical and vocational education.

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This is one of the objectives advocated by some countries for skill development as part of general education, particularly in the lower secondary school level.

The objective is especially useful for learners who are going to continue their studies in vocational and technical schools instead of in academic schools.

C. Issues and problems

1. Issues

- a) There are two schools of thought concerning the development of productive skills. One is for the purpose of immediate use, i.e., to enable the learners to employ his skills for everyday living and to enable him to participate in socially useful activities. Another school of thought is to prepare the learners for further learning in vocational and technical institutions as well as for entering vocation after leaving the school.

Those who advocate the first viewpoint regard the immediate use of skills developed as well as the service to the community as important. They believe that at this stage of education (general education level) specialization in a certain vocation should not be emphasized. It is only the basic skills that would be needed, and what is more important is the development of desirable attitudes towards work and good working habits which could be used in the present as well as future life of the learners.

The second school of thought, however, advocates that for most developing countries most students will leave the general schools either for further studies or for work.

Under this condition it would be advisable that the education programmes for skill development be directed toward the student's needs. This does not mean that the skills learned cannot be of immediate use. With intensive training the learners should be in a position to do even better in providing service to the community.

Participants of the meeting were of the opinion that each viewpoint has its own merit and there should be more research studies on the strengths and weaknesses of both practices.

- b) One view regards formal schools as merely a learning agency, whereas the other regards formal school as a place for earning while learning under certain specific situations.

There is a general understanding that formal schools which are run by the Government and other organizations are meant for bringing behavioural changes among learners.

However, certain schools which have well established small farms, workshops, etc. provide skill education to the learners and try to produce goods or services which are saleable. The goods so produced are sold among students, teaching community or in the neighbourhood. Money so received is paid for the inputs and a major portion is used for developmental activities and a very small portion is

distributed among students as an incentive. In this way, needy students are helped by the institution and the activity itself would motivate them to participate more and more during leisure hours in order to earn more to help themselves and their families.

The above two practices as viewed by the participants were not in conflict with each other. If conditions permit, the second practice could be adopted to facilitate learning of the students. What one should be aware of is that the school should not be used as a place for profit making or for exploiting the students.

2. Problems and suggested solutions

Although almost all developing countries agreed that the training in socially useful productive work should be imparted to learners at all levels of education to prepare them for the world of work, in practice it was not fully recognized that skill education is to develop in the learners a positive attitude towards need based activities in the community. Hence, the study group felt that in most developing countries skill education has low priority.

It was realized that without sufficient social, administrative, and financial support, it would be impossible to implement skill education properly. For this reason, two basic strategies need to be employed:

- a) to conduct research and development activities to develop models of efficient and effective skill education programmes as an integral part of general education in a formal setting; and
- b) to alert the government through inter-agency activities about the importance of skill education as a part of general education.

Group B. Approaches to skill education

All participating countries reported that both formal and non-formal approaches have been used. Formal approach in this context refers to an approach used in implementing skill education in the regular school system such as primary school, secondary school, vocational school, etc. Non-formal approach means an approach in implementing skill education for those who are not in the regular school system.

The group discussed the programmes of skill education, the nature of the programme, the target group, the time used for each activity, the administration of the programme, the teachers, and the institutions that co-ordinate the programme.

A. Formal approach

Each participating country has its own programmes of skill education which are being implemented through formal approach. This type of approach has a unique characteristic for each country depending on its condition and situation.

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1. Programme

Although each country has its own specific social needs, it appears that Home Economics, Agriculture, Wood and Metal Work, Technical Skills, Arts and Crafts, and Services are the common programmes. However, instructional materials may vary, depending upon the specific needs of each country.

2. Nature of the programme

Generally, skill education is not aiming at developing manual skills only, but also at other forms of development, relating to cognitive and affective domains. The stress is of course given to skill development. In developing the skills some countries aim at direct production, but some train only the basic skills. There are some countries that differentiate clearly the nature of skill education between general schools and vocational schools and also between formal and non-formal education.

3. Target group

The reports of all participating countries indicate that some countries, such as Indonesia and India, offer productive skills programmes in all grades. Other countries, such as Afghanistan offer these programmes only in grades 7 and 8, and Malaysia starts at the lower secondary level. Some aspects of Home Economics such as Cooking and Dress Making, for some countries, are intended only for girls, in some other countries they are for both boys and girls.

4. Time

Although the time allocation for productive skill varies from country to country and from grade to grade, the range generally is from 2 to 8 periods a week.

In cases where there is a lack of classrooms/school buildings the school is usually run in two or three shifts. The more shifts the shorter the periods.

5. Administration of the programme

Every country which provides skill education for all children offers both compulsory and elective subjects in general and vocational schools.

6. Teachers

One of the important components of the education system is the teacher.

It is common to all the participating countries that teachers in skill education are recruited in several ways. The normal way is to train teachers at the teacher training institute. In this type of training the teacher not only received training in technical skill but he or she will also acquire background knowledge of education and the knowledge and skill in teaching productive skills. However, most countries face the same problem of shortage of such kind of trained teachers, especially in general schools. Therefore, skilled manpower from the society, factories, plantations, etc., may be asked to be teachers on part time basis. There are also teachers in other subject areas who have ability and perhaps capability to be productive skills teachers, although they do not have training background in productive skills. This type of teachers need additional training in order to strengthen their ability and capability in teaching the necessary skills.

7. Institution

It was reported by all participating countries that the implementation of productive skills programme based on the formal approach is under the co-ordination of the Ministry of Education. In some countries there are private institutions that run the school but they are still under the control of the government.

B. Non-formal approach

1. Programme of study

Generally all participating countries reported that non-formal education is developed on the basis of the need of the society. Since each country has its own way of life according to its own tradition and culture, the contents of the programmes cannot be the same for all countries. The areas of study organized for non-formal system are almost the same as those of the formal system. The difference is in the selection of specific aspects from the area of study to cover the specific needs of the society. For example, Afghanistan has developed programmes on Agriculture (Bee Breeding, Silkworm Cultivation) and Art and Craft (Ceramics, Carpet and Rug Production); Sri Lanka has developed programmes on Technical Skills (Electric Wiring, Musical Instruments), Art and Craft (Book Binding, Printing and Wood Carving); India has developed programmes on Agriculture, Home Economics, Metal and Woodwork, Technical Skill, and Indonesia has developed programmes on Home Economics, Agriculture, Wood and Metalwork, Technical Skills, and Art and Craft

2. Nature of study

Non-formal approach in skill education as mentioned above is directed to the people outside the regular school system. The emphasis would be on the training of productive skills, but the types of specific skills needed by each participating country are not the same. For some countries such as India, Viet Nam and Indonesia, there is a tendency to put emphasis on agriculture in line with the economic structure of the country.

3. Target group

Unlike the formal skill education system where the target group consists of students of the same age and educational background, the participants in the non-formal productive skill training consist of mostly those who are not in school, so that they vary in age, educational background and possibly in social economic status. However, some countries organize their programmes for a certain group of people according to their educational background. India classifies its programme into 4 categories, i.e. programme for illiterates, for primary level, for secondary level, and for senior secondary level.

4. Time

The length of time for productive skill training depends on the type of training and the amount of content. Since the main objective is acquiring skill, the length of time depends upon the ability of the participants to master the skill.

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5. Administration of programme

There are many types of training programme for productive skills. Each type has its own characteristics, and therefore the requirement for each programme is also different from one to another.

6. Teachers

Training courses for productive skills in the non-formal system are very specific. This means that the teachers or the instructors, as they are usually called, should possess very specific skills. None of the participating countries reported about the availability of formal teacher training programmes for such specific skills. The question is, where and how to find instructors for these training courses. The normal way is to make use of experts in the society, community leaders, and other skilled manpower.

7. Institution

It was reported that in some countries, like Viet Nam and Afghanistan, all training courses are run by government institutions. But in some countries training courses are run by government as well as private institutions.

In some countries the participants have to pay in order to join the training courses, but in some countries the participants will get all allowance when they get training. Usually the payment for the participants is made when the course is run by the government, such as in Indonesia in some cases.

C. Problems and issues

In a skill education system, whether it is formal or non-formal, there should be people or a group of people who develop the curriculum. There should also be people or a group of people who develop the instructional materials, and teachers who use the instructional materials. It happens in most of the countries that due to inadequate communication between the curriculum and instructional material developers and the teachers the latter sometimes find difficulties in implementing materials that have been developed by the curriculum and instructional material developers. This situation will no doubt affect the teaching-learning situation. To close the communication gap between these two groups, the group suggested that:

- a) Face to face communication should be done frequently; and
- b) In case the direct contact as stated in a) is not possible, other media should be used.

Group C. Instructional materials

The group studied and discussed some innovative programmes with reference to development of instructional materials for productive skills in formal and non-formal education in the participating countries as given in the country reports and also through discussion with the participants.

A. Development of curriculum

1. It was reported by most countries that the curricula for schools are developed and monitored centrally. In Indonesia the curriculum for skill studies in general education is developed by the Centre for Curriculum

Development, in Malaysia it is by the Technical and Vocational Education Division, Sri Lanka by the school under the guidance and direction of the Curriculum Development Centre, Viet Nam by the Institute of Educational Science and Afghanistan by the Curriculum and Textbook Department. An exception is India. In India although the National Council of Educational Research and Training (NCERT) develops curriculum for skill education in schools, the states are free to modify the curriculum for their own local needs.

2. In most countries, curricula for skill education in formal set-ups are done by teams composed of subject area specialists and curriculum specialists from the schools, colleges and Ministries of Education. The draft curriculum after being prepared and reviewed is normally to be approved by the central authority.

3. The development of curriculum for skill education in all the countries generally follows the following procedures:

a) Develop Curricular Objectives

This can either be general objectives or general and specific behavioural objectives. The curricular objectives are derived from the national policies, rationales and concepts regarding skill development in general education.

b) Develop Instructional Objectives

Instructional objectives of a subject area are the objectives to be acquired by the students in the teaching-learning process at the end of certain periods of time such as a quarter, a semester, etc. These objectives are derived from the curricular objectives.

c) Identify and Select Contents/Topics

On the basis of the instructional objectives, contents/topics are identified and selected.

d) Organize Contents/Topics

Topics or sub-topics identified and selected in the previous step are organized in terms of grade levels and semesters.

The programme containing the curricular objectives, instructional objectives, and contents/topics which have been organized in terms of grade levels and semesters, forms the basic course outline.

e) Develop Instructional Materials

Instructional materials are developed on the basis of the basic course outline.

f) Evaluate Curriculum Programme

The evaluation of the curriculum programme is designed to acquire information needed for the improvement of the instructional materials, programme design, programme operation and teacher training, as well as information about the effectiveness of the system in achieving the objectives. For this purpose, the evaluation will be concerned with both the outcome and the process of the system.

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B. Development of instructional materials

1. Development of instructional materials for skill education has mainly been done at institutional level by the teachers, in all the countries, although some countries have developed guidelines in a more systematic approach to facilitate the development of the materials. In Indonesia, under the Educational Reform Programme, Development School Projects have been set up to experiment on a new system of education and to try out instructional modules designed by the Centre for Curriculum Development. The development of modules in Indonesia follows 3 major steps as follows:

- a) Identification of learning units;
- b) Construction of blue-prints containing general instructional objectives, specific instructional objectives, test items, learning content, learning activities and aids/sources of learning activities; and
- c) Development of modules.

Most of the countries generally follow the following steps in the development of instructional materials:

- a) Study curricular objectives;
- b) Develop instructional objectives;
- c) Select contents/topics relating to instructional objectives;
- d) Select and develop teaching-learning activities;
- e) Select teaching-learning resources;
- f) Develop instructional materials;
- g) Develop test instruments; and
- h) Try out and evaluate the instructional materials.

Criteria for selection and development of instructional materials in most countries have not been very well defined. However, most countries seem to adopt the following criteria:

- a) Relevance to curricular objectives;
- b) Relevance to society and community;
- c) Availability of materials;
- d) Well structured;
- e) Clarity of instructions;
- f) Involvement of student participations;
- g) Inclusion of evaluation instruments;
- h) Cost; and
- i) Utilization factor.

C. Instructional materials

There are various types of instructional materials developed in different countries, as shown in the following:

1. In India, NCERT has developed instructional materials in skill education in the form of teacher guides, handbooks, doing-learning type of materials, curriculum guides, etc.

2. As mentioned earlier, Indonesia has developed a modular system for skill education under the Development School Projects.

3. Malaysia has emphasized on the development of worksheets in skill education.

4. Viet Nam, India, Sri Lanka, and Afghanistan have stressed the utilization of local and community resources in the development of instructional materials.

D. Implementation and evaluation of instructional programme

Two approaches have been used in the implementation and evaluation of instructional programme.

1. Pilot study

This is the approach adopted by Indonesia in the Development School Projects. The steps involve:

- a) Trying out of programme;
- b) Collection of data to make assessment, and evaluation of the process and outcome of implementation; and
- c) Revision of programme.

2. Continuous assessment and monitoring

This is the approach adopted mainly by all the countries. The implementation of programme is done on a wide scale and feedback from the school on the implementation is obtained through questionnaires and interviews during school visits.

E. Problems and issues

1. Problems

There are some similar problems and weaknesses faced by some countries in the development of instructional materials. They are:

- a) Uncleared curricular objectives especially those related to cognitive and affective domains;
- b) Lack of funds and resources;
- c) Lack of expertise;
- d) Lack of well trained staff;
- e) Lack of understanding by programme implementors;
- f) Lack of follow-up activities in implementation;
- g) Lack of co-ordination among agencies on skill education; and
- h) Administrative problems.

2. Suggested Solutions

It was felt that most of the problems could be overcome by a greater commitment of the personnel responsible for the development of instructional materials. It was also realized that the trend of education now is shifting from teaching to learning. As such more diverse instructional materials should be prepared to evoke greater participation of students in learning. Development of instructional materials should also adopt an interdisciplinary and multimedia approach so as to involve expertise in various fields, and also to vary the forms of instruction and to bring the learners to the real life situations as far as possible. The organization of workshops, seminars and courses is also very important for dissemination of ideas and understanding regarding curriculum and instructional materials.

3. Issues

Some issues can be raised as regards the development of instructional materials:

- a) Who should design the instructional materials? Should the design be on a national, regional or institutional basis?

Most countries at the moment are unable to centrally develop instructional materials. Thus there is a need to give teachers assistance in the development of instructional materials and implementation of curriculum programme as most of them are not adequately trained in instructional material development. Also teachers left to their own decisions, tend to teach in the manner in which they themselves were taught and may lose sight of the intended curricular objectives. Although development of instructional materials at the central level can be done by bringing together the best teachers in the country, there are also arguments against the centrally developed instructional materials as they may not be relevant to the local needs of the school.

- b) If the instructional materials are centrally developed, to what details should they be designed?

In some countries, instructional materials are given in the form of a modular system and in others the teachers are only given guidelines for development of such materials.

Instructional materials consist of a wide range of things like lesson plans, audio-visual aids, project sheets, test questions, etc. Some teachers would argue that if all these details were to be given to the teacher, teaching would become too restrictive. Also since a lesson plan is a very personal document, it should be related to a specific class of students. Finally a teacher needs much tolerance and latitude in order to deal with the individual differences that are always present in a particular class. The above arguments cannot be true if instructional materials developed for the teachers are given as a guide and not something they must follow very rigidly.

- c) Pilot study versus continuous evaluation of the curriculum programme.

In some countries, curriculum and instructional materials are tried out in pilot schools, data are collected and studies are made on the implementation of the programme. The programme would be revised or widely implemented depending on the results of the pilot study. The idea of having a pilot study is that implementation of any new curriculum programme in a large scale can have wide social implication and it is better to try out in small scale first so that problems or implications that may arise during implementation could be limited to a minimum. However,

it should be realized that pilot study schools may not represent the norms of the country and the data collected from only a few schools may not be sufficiently valid.

It may be necessary to conduct pilot studies of a new curriculum programme especially in big countries with diverse curriculum programmes. However, since curriculum development is a continuous process the evaluation of curriculum programmes should not terminate at pilot studies. Continuous assessment and monitoring of curriculum is necessary to up date and revise the programme according to new problems and constraints growing out of the implementation of the programme.

Chapter IV

GUIDELINES FOR DEVELOPING INSTRUCTIONAL MATERIALS IN PRODUCTIVE SKILL EDUCATION

The syntheses of experiences as already discussed in the preceding chapter were used as the basis for consideration of guidelines for the development of instructional materials in productive skill education. In their deliberations the participants divided themselves into three groups - group A, group B, and group C. Group A was concerned with the development of the curriculum covering the identification of areas of skill development, objectives of each area and teaching-learning strategies used to achieve the objectives. Group B was concerned with the development of instructional materials to support the implementation of the curriculum, designed on the basis of the objectives and teaching-learning strategies adopted. Group C was concerned with the development of a strategy for developing effective models of instructional programmes and materials. The list of each group members is in Annex IV. The procedures used in developing the guidelines by different groups were more or less similar. Three steps were undertaken to prepare the guidelines: 1) identifying existing conditions relating to each topic discussed; 2) specifying problems which may lead to the existing conditions previously discussed; and 3) proposing guidelines to improve the existing conditions in the light of the problems specified. Throughout the process of developing the guidelines, the group took into account the problems and other pertinent information as were already identified in the syntheses of experiences.

The guidelines which were developed were tested by using selected exemplar material to ascertain their applicability and were found to be satisfactory: The exemplar materials used are in Annex V.

Following are the guidelines developed by the group.

Group A. Development of the curriculum

1. Identification of the areas of skill education programmes that are relevant to social and individual needs and problems

Existing conditions

- a) Most of the programmes are based on the availability of resources;
- b) Skill education has not been given priority in general education;
- c) Objectives of skill education programmes are not relevant to the needs and problems faced by school learners in the society; and
- d) In non-formal education set-up, programmes available mostly serve the mood rather than the needs of the learners.

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Problems

- a) No systematic planning (Development of the programmes are done in an ad hoc way);
- b) No adequate communication and consultation between educational institutions and the world of work; and
- c) Inability of the educational institutions to respond to and catch up with the changing demands of the society.

Guidelines

- a) Identify needs and problems that can be solved through the development of productive skills in the educational institutions - formal and non-formal;
(study: - survey : to assess the problems and the needs felt by knowledgeable people from different walks of life.
- seminar : among professionals and community leaders).
- b) List down the needs and problems according to the priority;
- c) Analyze and translate the needs into topics of certain skill areas;
- d) Select educational topic among skill areas for different target groups; and
- e) Organize school educational programmes and out-of-school educational programmes according to the target groups using the selected educational topics.

2. Criteria for selecting objectives

Existing conditions

- a) Skill education programme has not effectively developed productive skills as needed by the learners after leaving the school;
- b) Skill education merely stresses on manual skill exercises that are not relevant to mastering a more solid productive skill;
- c) The series of lessons in skill education has not been programmed in a logical sequence that progressively influence the formation of skills; and
- d) There is no consistency between the objectives and the nature of the problems faced by the society in a certain skill area.

Problems

- a) No clear description of the role of skill education as a part of general education in relation to certain skill area; and
- b) Educational objectives are defined and selected arbitrarily (not on rational basis).

Guidelines

In order to organize programmes of skill development in a proper sequence and to make them productive, educative and socially useful, it is suggested that the following criteria be used:

- a) At the level of selecting curricular objectives:
 - (i) should reflect skills or competencies needed to solve the problem in a certain skill area;
 - (ii) should be achievable by the learners of a certain school level;

Guidelines for developing instructional materials

- (iii) should be applicable as the basis for learning a more advanced level of competencies in a certain skill area; and
 - (iv) should be essential for students either in a formal or a non-formal setting.
- b) At the instructional level:
- (i) should be functional and relevant to certain objectives stated in the curriculum;
 - (ii) should be achievable by a learner in the planned instructional set-up; and
 - (iii) should reflect the achievement of the affective, psychomotor, as well as the cognitive domains.

3. Development of objectives

Existing conditions

- a) In most countries, teaching has been looked upon as merely presenting a lesson to the learners;
- b) Teachers seldom realize what they are supposed to achieve in the lesson or to evaluate the teaching from the learning point of view; and
- c) Teachers do not know clearly what they are supposed to evaluate as the objectives in the curriculum are not clearly spelled out.

Problems

- a) In most countries, the objectives of a skill education programme are either not stated or not defined clearly. Most of the curricular or instructional objectives are not stated in explicit behavioural terms, i.e., in terms of expected learning outcomes of the learners;
- b) Most of the curriculum developers are not familiar with the use of objectives in curriculum development; and
- c) Seminars, discussions and courses on the use and development of objectives in curriculum have not been provided adequately.

Guidelines

It has been proposed that curricular and instructional objectives should be systematically developed according to the following procedures:

- a) Study the criteria that have been developed for selecting the objectives;
- b) Select certain activities for developing curriculum programme relevant to the need of a particular institution;
- c) Conduct analysis of the activities that have been selected for skill education. The steps involve:
 - (i) identifying and listing down the elements of an activity, consisting of knowledge, attitudes, and steps necessary to perform the activity;
 - (ii) analyzing the importance and relevancy of the elements in relation to the need and criteria that have been identified; and
 - (iii) selecting the essential elements for translation into courses and instructional objectives;

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- d) Develop the curricular and instructional objectives. The development of objectives can adopt the following steps:
 - (i) formulate the course objectives based on the activity elements that have been identified;
 - (ii) organize the course into units and formulate the general objectives for each unit; and
 - (iii) develop a set of specific instructional objectives for each general objective. The specific objectives should describe the intended learning outcome of the student in behavioural terms and should be sufficient to show that the general objective has been achieved;
- e) The objectives formulated should be categorized into various levels in the cognitive, affective and psychomotor domains. This exercise is to check whether the objectives developed are in accordance with the specified criteria and levels. Revise the objectives if necessary; and
- f) The objectives can also be evaluated and revised during the implementation of curriculum programme.

4. Design of teaching-learning strategies to support the attainment of objectives

Existing conditions

- a) Skill education in most of the participating countries is mostly taught in a monotonous way;
- b) Methods of teaching skill development have been influenced by the academic training received by the teachers or curriculum developers; and
- c) Teaching skill education in formal education system is almost the same as that in non-formal education system in spite of the differences in objectives.

Problems

- a) Most of the teachers do not have sufficient knowledge about different kinds of teaching methods making it difficult for them to choose the most effective methods for achieving the objectives; and
- b) It is also likely that the curriculum developers do not have sufficient ability to design the teaching-learning strategies that would support the attainment of the objectives.

Guidelines

In order to develop the more effective and efficient teaching-learning strategies the following steps are recommended:

- a) Analyze the nature of objectives that have been formulated;
- b) Identify the indicators of the mastery of the objectives;
- c) Identify learning contents that are relevant to the objectives, and select the most relevant ones;
- d) Identify the potential learning activities and select the most effective and feasible ones;
- e) Identify learning resources that are relevant to the learning contents and activities, and select the most appropriate ones; and
- f) Organize the sequence of teaching-learning activities that would optimize the attainment of the objectives.

Guidelines for developing instructional materials

Note: For certain types of instructional programmes the development of an evaluation instrument is done immediately after specifying the objectives whereas for other types of programmes this step is done following the organization of teaching-learning activities.

Group B. Development of Instructional Materials

1. Characteristics of effective instructional materials

Existing conditions

- a) Most of the teachers still use conventional outdated instructional materials, like textbooks and teaching notes without knowing their utility in fast changing situations;
- b) Most of the instructional materials available are teacher centred rather than student centred, they are not planned with student participation in the learning-teaching processes; and
- c) Majority of the instructional materials are now logically structured to meet the instructional objectives.

Problems

- a) The teacher tends to teach in the same manner as they were taught and practice the same old instructional materials; and
- b) Normally teachers are not evaluated on the suitability of the materials they are using to achieve the instructional objectives.

Guidelines

The following points should be noted in the selection of instructional materials:

- a) relevant to instructional objectives;
- b) logically structured;
- c) instruction must be clear;
- d) student centred;
- e) include evaluation instruments;
- f) cost should be able to justify the effectiveness;
- g) can be supported by available resource materials; and
- h) should be available for full utilization.

2. Essential instructional materials to support the implementation of the programme

Existing conditions

- a) In many cases while textbooks are the common instructional materials for skill education, other materials such as teachers guide and worksheet are not available; and
- b) In most cases funds and resources have been diverted to the purchase of expensive tools and equipment rather than low cost printed materials.

Problems

- a) Inadequate use of funds and resources needed to facilitate effective teaching-learning processes;
- b) Ineffective method in selecting essential materials;
- c) Lack of awareness among curriculum developers in respect of the importance of instructional materials in facilitating effective teaching-learning processes; and

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- d) Lack of technical know how on the part of the teachers/ instructors in the selection of essential instructional materials.

Guidelines

In order that limited fund and resources can be utilized effectively in implementing skill education programme, essential instructional materials should be selected on the basis of its function to guide and direct teachers and learners engaged in teaching-learning activities. The following instructional materials are suggested for use by teachers or learners:

- a) Teachers guide - This should have objectives and content outlines of the curriculum and should also provide guidelines on teaching-learning strategies and evaluation methods.
- b) Students guide - This should be written at the student's language level. It should provide the student with what he is expected to achieve in the lesson, as well as to give guidance on learning steps.
- c) Job sheets - This can be incorporated in the teachers guide or students guide.
- d) Evaluation instruments - This can also be incorporated in the teachers guide or students guide.
- e) Audio visual aids - This can be in the forms of pictures, charts, slides, films, make-ups learning kits local resources etc. The use and selection of these aids should be in the teachers guide.
- f) Reference textbooks - They are usually available in most of the institutions but their selection should be carefully done so that they are suitable for the implementation of the curriculum.
- g) Learning modules - Modular systems consisting of teachers guide, students guide and evaluation instruments are introduced in some countries to encourage greater participation of students in learning.

3. Steps in developing instructional materials

Existing conditions

In spite of the fact that most of the countries have applied some kind of logical steps in developing their instructional materials for productive skills, special attention needs to be given to the following shortcomings:

- a) Insufficient planning, evaluation and improvement of the materials while they are being prepared; and
- b) Lack of careful testing and improvement of the materials prior to their actual use in the larger scale.

Problems

- a) Lack of awareness and knowledge of the essential steps required in the development of instructional materials; and
- b) Lack of actual capability in carrying out activities involved in the steps required.

Guidelines

a) Preparation of the materials

After objectives, strategies and types of instructional materials have been determined, further steps in developing instructional materials should include the following:

(i) develop the blue-print for each material

This blue-print specifies (1) content outline, types of learning activities; (2) types of learning aids; (3) learning steps to be followed; (4) evaluation procedures for each step/activity; (5) roles of teachers/instructors as well as students/trainees in each step; and (6) the format in which the material would be presented;

(ii) review and improve the blue-print;

(iii) develop the actual material on the basis of the improved blue-print; and

(iv) review and improve the material.

Note: In undertaking steps (ii) and (iv) a set of relevant criteria should be specified and used.

b) Implementation of the material already prepared

After the material has been prepared, the following steps need to be undertaken:

(i) try out the material in a limited scale;

(ii) evaluate the material in terms of the learning process as well as the outcomes, and the feasibility of the activities suggested in the material;

(iii) improve/modify the material based on the feedback of evaluation;

(iv) gradually disseminate the improved material for use in the larger scale; and

(v) improve/modify the material on the basis of continuous monitoring and assessment.

4. Role of central, local and institutional agencies in the development of instructional materials

Existing conditions

- a) Inadequate administrative support to this curriculum area in general education set-up;
- b) Inadequate facilities to carry out and practice productive skills;
- c) Teachers do not feel competent enough to impart training to students in productive skills;
- d) Limited instructional materials in areas identified for skill education; and
- e) Inadequate co-ordination among curriculum development agencies and among departments belonging to the same organization regarding the use of resources.

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Problems

- a) Inadequate awareness among planners and developers about the importance of this curriculum area under general education set-up;
- b) Lack of funds to provide skill education;
- c) Lack of adequate training facilities for productive skills to school teachers; and
- d) Improper planning and differences in priorities for this curriculum area at central and state/local curriculum development agencies.

Guidelines

Role of central educational agency

- a) Orient administrators, heads of the Institution and teachers with the concept and philosophy of skill education as a part of general education;
- b) Develop curriculum model which may be accepted in total by the central schools and state/local schools or after bringing suitable modifications;
- c) Develop models and arrange teacher training programmes for selected teachers for providing skill training and up-dating knowledge in identified productive skill areas;
- d) Provide adequate funds for the development of instructional materials in skill education;
- e) Organize workshops to develop instructional materials for productive skills by involving groups of people from teaching community, subject specialists, professionals and curriculum specialists;
- f) Organize exhibitions to display various instructional materials developed by centre, state/local agencies and schools, at least once in two years;
- g) Provide expertise in the development of instructional materials in productive skills to state/local educational agencies; and
- h) Undertake feedback studies and collect feedback data conducted by the state/local agencies to review the curriculum and instructional materials from time to time.

Role of state/local educational agencies

- a) Review curriculum models developed by central agency;
- b) Undertake relevant modification, if necessary;
- c) Orient administrators, heads of the Institution and teachers with the concept and philosophy of skill education as a part of general education;
- d) Arrange teacher training programmes for providing skill training and up-dating knowledge in identified productive skill areas;
- e) Provide adequate funds for the development of instructional materials in skill education;
- f) Organize workshops to develop instructional materials for productive skills by inviting group of people from teaching community, subject specialists, professionals and curriculum specialists.
- g) Organize exhibitions to display various instructional materials developed by schools at least once in two years; and
- h) Undertake feedback studies to review the curriculum and instructional materials once in two years.

Guidelines for developing instructional materials

Role of schools

- a) Select available materials (preferably local) for developing or designing effective instructional materials; and
- b) Prepare or develop teaching aids by using local materials, if possible.

5. Roles of planners, developers, implementors, and teachers in implementing instructional materials

Existing conditions

- a) There are inconsistencies among the types of programmes offered in skill areas, the course objectives, the instructional materials, and the learning processes experienced by the learners;
- b) Many instructional materials developed cannot be implemented by the teachers; and
- c) Objectives are unrealistic and instructional situations are not properly designed.

Problems

- a) Lack of communication between planners who plan course outlines and curriculum developers who develop instructional materials;
- b) Lack of communication between curriculum developers who design instructional materials and teachers guides, and the teachers who implement the instructional materials; and
- c) Lack of knowledge on the part of the planner of the importance of the problems and constraints faced by the implementors in using the instructional materials before designing the course outline of the skill education programme.

Guidelines

In order to implement skill education programmes efficiently and effectively and to facilitate the use of instructional materials, certain working arrangements among curriculum planners; curriculum developers, and the implementors of the instructional materials need to be organized. The following activities to be undertaken by the responsible persons are suggested:

a) Curriculum Planners

- (i) conduct a series of meetings with those responsible for developing instructional materials as well as teachers to communicate the knowledge about the nature and objectives of the programme and to obtain information on the capability of the teachers and the availability of resource materials to support the implementation of the programme;
- (ii) conduct a series of workshops involving curriculum developers and teachers to develop course outline in certain skill areas;
- (iii) develop evaluation programmes to identify problems and conditions needed for implementing the programme effectively as well as measure the effectiveness of the programme;
- (iv) conduct a series of workshops to develop teacher training programmes involving curriculum developers and managers of the implementation programme; and

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- (v) conduct monitoring activities on the implementation of the programme.
- b) Curriculum Developers
 - (i) as a mediator between the planner and the implementor the curriculum developer should always be in close contact with the teachers and the planners;
 - (ii) conduct a series of studies on the background knowledge; skills and attitudes of the learners;
 - (iii) conduct a series of professional meetings with the teachers to communicate the ideas and to identify their problems and their level of understanding;
 - (iv) conduct a series of school visits to get direct feedback on the quality of instructional materials that have been developed; and
 - (v) work in close relationship with people developing educational equipment to support the implementation of instructional materials.
- c) Teachers
 - (i) identify objectives to be achieved when using certain instructional materials;
 - (ii) develop a strategy to implement certain instructional materials;
 - (iii) diagnose problems faced in the implementation of certain instructional materials;
 - (iv) identify difficulties faced by the learners in using certain instructional materials; and
 - (v) communicate problems and difficulties in implementing instructional programmes to the curriculum developers after consultation and discussion with fellow teachers.

Group C. Development of Effective Models of Instructional Programmes and Materials

1. Design of research and development programmes to develop effective models of instructional materials

Existing conditions

- a) Several programmes launched, and innovations introduced by the participating countries into the education system have not succeeded in carrying out the mission. The status of skill education is not very satisfactory, due to inadequate resources of the implementing institutions;
- b) Skill education as a part of general education has been introduced on pilot scale by some of the participating countries;
- c) Certain programmes and innovations are introduced because they are working well in some other countries, without considering their feasibility under prevailing socio-economic conditions; and
- d) Research and Development agencies are not fully equipped to undertake and develop effective models of instructional materials.

Problems

- a) Education as science as well as professional discipline has not come to a state when paradigms, theories, and techniques as well as methods have been developed and tested through a series of research and development activities as have been conducted by other professional disciplines;
- b) The agencies dealing with Curriculum Development have limited resources in terms of funds and manpower and authority to carry out effective research and developmental activities in the field of education; and
- c) The co-ordination among Ministries responsible for imparting different types of training and education is inadequate.

Guidelines

In order that the development of skill education as a part of general education as well as a part of the non-formal education programmes will not make the same mistakes, a certain strategy needs to be developed. The following steps are suggested as general guidelines to develop effective models of instructional materials in skill education.

- a) Analyze the unique role of skill education programme in its relation to the other programmes within the context of the school programme;
- b) Identify and define problems as well as the objectives of skill education;
- c) Identify both facilitating factors as well as constraints which could influence the implementation of skill education;
- d) Generate alternative ways/methods of imparting skill education programmes in formal and non-formal systems;
- e) Select the most appropriate ways/methods in the light of the facilitating factors and constraints mentioned earlier;
- f) Develop instructional materials for developing the concerned skills including a built-in evaluation programme to measure the effectiveness of the materials; identify constraints faced in the implementation of the materials and methods to implement the materials effectively and efficiently;
- g) Try out the materials first on a pilot scale;
- h) Revise the materials based on feedback collected by a systematic evaluation programme;
- i) Put the revised materials into second trial as well as in other settings as a predissemination state;
- j) Develop a supporting programme for implementing the materials such as in-service training for teachers and other personnel, supply of educational media and facilities, and administrative support;
- k) Conduct second trial for large scale dissemination;
- l) Study the cost implications to implement the materials;
- m) Prepare readiness among the users, and other personnel who will be involved in the implementation of the materials; and
- n) Work out plans for a large scale dissemination.

ANNEXES

ANNEX I

AGENDA

1. Opening of the Meeting
2. Election of Officers of the Meeting and Consideration of Agenda and Provisional Schedule of Work
3. Presentation and Discussion on Country Reports
4. Visits to Institutions implementing Skill Education Programmes
5. Preparation of Syntheses Reports on Experiences
6. Preparation of Guidelines for Developing Instructional Materials
7. Preparation of Draft Final Report
8. Closing

ANNEX II

LIST OF PARTICIPANTS AND OBSERVERS

A. Participants

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Dr. Thamrong Buasri
Specialist in Curriculum Development
ACEID

ANNEX III

LIST OF OFFICERS OF THE MEETING

<u>Chairman:</u>	Mr. Soedijarto	- Indonesia
<u>Vice Chairman:</u>	Dr. Avant Kumar Sacheti	- India
<u>Rapporteurs:</u>	Mr. Gan Chee Kuan	- Malaysia
	Mr. R. Ibrahim	- Indonesia

ANNEX IV

A. LIST OF MEMBERS OF GROUPS ON SYNTHESIS OF EXPERIENCES

Group A : Concepts and objectives

Members :	Dr. Avant Kumar Sacheti	Chairman
	Mr. Soedijarto	
	Mr. Ibrahim	
	Mr. Roeswoto	
	Mr. Soetomo	

Group B : Approaches to Skill Education

Members :	Mr. Z.F. Kawareh	Chairman
	Dr. Nguyen Quang La	
	Mr. Le Van Toan	
	Mr. M. Nader Ahadi	
	Miss Sumarinah	

Group C : Instructional materials

Members :	Mr. Gan Chee Kuan	Chairman
	Mr. I.D.S. Waidyasekera	
	Mr. Iyes Ardiwinata	
	Mr. Slamet Rahardjo	
	Mr. Enggus Subarman	

B. LIST OF MEMBERS OF GROUPS ON PREPARATION OF GUIDELINES

Group A :

1. Mr. Gan Chee Kuan
2. Mr. Z.F. Kawareh
3. Mr. M. Nader Ahadi
4. Mr. Slamet Rahardjo
5. Miss Sumarinah
6. Mr. Soedijarto
7. Mr. Soegiarto
8. Mrs. Asmaningsih

Group B :

1. Mr. Ibrahim
2. Mr. Avant Kumar Sacheti
3. Mr. Iyes Ardiwinata
4. Mr. Nguyen Quang La
5. Mr. Le Van Toan
6. Mr. I.D.S. Waidyasekera
7. Mr. Enggus Subarman
8. Mr. Suheru
9. Miss Greta C. Librata

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- Group C : 1. Mr. Avant Kumar Sacheti
2. Mr. Soedijarto
3. Mr. Ibrahim
4. Mr. Gan Chee Kuan

ANNEX V

Selected Exemplar Materials and Teaching Guidelines

1. TEACHERS GUIDE*

General Guide

This module is given to the students so that they can acquire basic knowledge concerning the strength of wood construction.

Specific Guide

1. Topic : Basic knowledge concerning wood construction mechanics
2. Class : 10th grade
3. Time : 6 x 45 minutes
4. Instructional objectives
 - a. General instructional objectives
The students will acquire a basic knowledge concerning wood construction
 - b. Specific instructional objectives
 - The students are able to describe what is meant by wood construction.
 - The students are able to differentiate various wood constructions.
 - The students are able to describe the advantages of wood construction.
 - The students are able to describe the disadvantages of wood construction.
5. Basic learning units
 - a. Definition of wood construction.
 - b. Various kinds of wood construction.
 - c. Advantages of wood construction.
 - d. Disadvantages of wood construction.
6. Teaching procedures
 - a. Teacher's activities
 - Create a good atmosphere for learning-teaching activities.
 - Prepare the necessary equipment for teaching-learning activities.
 - Guide the students in studying the students worksheet.
 - Answer and explain any student's questions.
 - Show some of the kinds of wood constructions which exist to the class.
 - Give examples of advantages and disadvantages of wood construction of furniture to the class.
 - Guide and supervise the students in doing the student's worksheet.

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b. Students activities

- Use module and instructional materials prepared by the teacher.
- Carry out activities mentioned in the students activity sheet.
- Do the worksheet.
- Observe and follow the explanations and the guidance of the teacher.
- Do the test.

7. Equipment, supplies and reference sources

a. Instructional equipment used

- Chalk
- Eraser
- Wood construction models, if they exist

b. Reference : Ir. K.H. Fellix Yap - "Konstruksi Kayu"

8. Evaluation

a. During the class, the teacher should evaluate the aptitude and perseverance of the students.

b. Evaluation measures

- Student worksheet
- Test

c. Evaluation Guide

- In the test sheet there are 10 test items with a maximum score of 10.
- Total maximum score 100.
- Final score

$$n = \frac{\text{Total score achieved}}{\text{Total maximum score}} \times 100$$

or

$$n = \frac{\text{Total score achieved}}{100} \times 100$$

*(from Skill Education Module

Core Programme, Ministry of Education and Culture, Indonesia)

2. SAMPLE OF DOING LEARNING UNIT*

Title : Making of name plates (Class V; Area Shelter; Sub-area Woodwork)

The need and scope:

It is necessary to identify houses.
This is easy if every house has a name board.
Wood is suitable material for name board.
This project provides scope for (i) shaping flat wooden pieces; (ii) preparing the surface for painting; (iii) painting letters and numerals on wood; and (iv) fixing of fixture when completed and for use by the community.

General objectives: Enabling the pupils to:

- a. Realize the need of name plates;
- b. Design products according to their purpose and availability of resources;
- c. Manipulate wood and paints and learn basic skills;
- d. Evaluate processes and products; and
- e. Develop self-reliance.

Organization and management

- a. Methodology - (with the help of discussion)
The pupils realize the difficulty in identifying dwelling places without any indication. As a part of environmental study, they study different devices used for making dwelling and they discuss the merits and demerits of those. They discuss the criteria of designing the name plate and selecting the raw material. They observe the carpenter and painter at work. They also observe the demonstration given by the teacher. They discuss the nature of working, correct use and maintenance of the material and the tools used in the project, the safety precautions that have to be observed and the procedure of evaluating the processes and the products. Finally they collect the materials and tools, execute the project in group work and evaluate the process and the product.
- b. Materials, tools and resources required.
Boxwood from spare packing boxes or wooden planks or plywood about 30 cm x 12 cm x 1 cm., 3 cm long nails or screws
2 numbers, Hooks - 2, Polish, Paints, sandpaper. Ruler, try-square, handsaw, marking knife, smoothing plane, paint, varnish, brush, carpenter, painter.
- c. Time Schedule - (See item 8) 4 periods of 40 minutes each.

Doing Learning Units:

- a. Exploration
 1. Observation of name plates and sign boards in the neighbourhood for different designs.
 2. Study of the trade of Carpenter and painter engaged in marking, cutting, planing, shaping, finishing and painting.

*Developing Socially useful Productive Work Curriculum and Implementing the Programme, NCERT, New Delhi, India.

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b. Experimentation

1. Designing procuring materials, say, wood and glass etc.
 2. Shaping and finishing for different designs.
 3. Painting in different colours or fixing prepared letters.
 4. Fixing of hooks, display, evaluation and cost calculation.
- c. Work Practice taking orders for making name plates and executing them and practice the skills.

Sequence of operations

- a. Designing of the name plate and planing in rectangle, circular and oval shapes.
- b. Preparing the bill of material and list of tools required.
- c. Collection of material and checking of tools.
- d. Preparing the wood for marking.
- e. Marking the job on wood.
- f. Cutting to shape.
- g. Finishing.
- h. Polishing.
- i. Paining or fixing prepared letters.
- j. Fixing hooks and displaying.

Probable outcomes from each unit

- a. From Unit No. a.1. - The pupils are able to judge the merits and demerits of - (i) the wall or door used for marking the dwelling, (ii) wooden name plate, (iii) metal name plate, (iv) plastic sheet name plates. They realize that - (i) a name plate is more convenient, (ii) wood is suitable material for name plate, (iii) generally the name plates, are rectangular, (iv) 30 cms x 12 cms x 1 cm is a good size and dwellers name is visible from the road. They develop the habit of making and labelling. They do not disfigure the name plates.
- b. From Unit No. a. 2. - They recognize teak, pine, nail and plywood. They also recognize rule, try-square, hand saw, smoothing plane, polish and paint and know how to use them.
- c. From Unit No. b.1. - The pupils are able to determine the shape and size of the name plate and use smoothing plane, ruler, try-square and marking guage for marking the job on the wood. They know the parts of the tools, how to use them correctly and maintain them properly. They appreciate the importance of working methodically and accurately. They acquire basic skills in the use of plane and hand saw.
- d. From Unit No. b.2. - The pupils are able to cut wood along straight lines, and smooth the surfaces with rasp and sand paper. They know that wood has grains (xylum) and smoothing has to be done along the grains and not across.
- e. From Unit No. b.3. - The pupils are able to polish wooden surfaces and apply paint in the desired design. They know how to polish stains wood and gives gloosy effect. Paints cover the surface with protective pigments. They appreciate maintenance of wooden surface with polish and paints.
- f. From Unit b.4. - The pupils are able to fix hook, check the portion of the length and breath of the rectangle, correctness of the shape, size, smoothness, application of polish and

paint, shape and size of letters; and display the name plate. They also calculate the time taken and compare the performance of the fellow pupils. They are able to calculate the cost and estimate wages. They learn marketing skills.

- g. From Unit No. c. - They develop more speed in work and better management abilities. According to the order, this unit could be taken up as ground project. They compare the advantage of duration of work. They appreciate the role of co-operation.

Ramification in other school subjects

- a. Drawing
- b. Language
- c. Arithmetic

The teacher may co-ordinate wherever possible.

Linkage with day to day living

- a. The child shall take pride to have his own name plate displayed at his own house.
- b. Help others to have a name plate.
- c. Earn some wages.

Evaluation by the teacher, pupils and community

- a. The teacher observes the pupils while at work and helps them if necessary in marking correctly and using the tools properly. He observes the posture and method of work and checks the final products.
- b. The role of the pupil has been explained under probable outcome (f).
- c. The community may also periodically evaluate the work done and express their views on the utility and market value of these items, the utilization value of the particular product, and the improvement of the work.

Suggestion for follow up work in the home or Community

- a. The children may study other kinds of name plates and marking system.

**APEID PUBLICATIONS RELATED TO EDUCATION
FOR PRODUCTIVE SKILLS**

Unesco, P.O. Box 1425, Bangkok G.P.O., Bangkok, Thailand

- *1. *Curriculum development for work-oriented education; report of a Regional Field Operational Seminar.* 1975.
- 2. *Centralized workshops in Singapore; study prepared for ACEID by P. Harbans Singh.* 1975.
- *3. *Pre-vocational education in Sri Lanka; study prepared for ACEID by W. Diyasena.* 1976.
- 4. *Report of work plans of APEID for the second programming cycle, 1978-1981.* 1977 (pages 28-35).
- *5. *Work and learning; final report of a Joint Operational Study of On-going Pilot Projects in Education in Asia.* 1978.
- *6. *Non-formal and alternative structures in education; report of an Asian Regional Workshop.* 1978.
- 7. *Towards implementation of the second cycle plan; final report of the Fifth Regional Consultation Meeting on APEID.* 1978 (pages 71-80).
- 8. *Review of non-formal programmes and structures and guidelines for organizing national and sub-regional workshops; report of a Planning Group Meeting.* 1979.
- 9. *Review and developments; final report of the Sixth Regional Consultation Meeting on APEID.* 1979 (pages 19-20; 31 and 61).
- 10. *Development of productive skills; report of a Sub-regional Workshop.* 1979.
- 11. *Evaluating pupil development - productive skills training; - moral education; report of a Regional Seminar.* 1980.

* Out of stock

The *Asian Programme of Educational Innovation for Development (APEID)*, initiated on the recommendation of the Third Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia (May–June 1971, Singapore) and the authorization of the General Conference of Unesco at its seventeenth session (Paris, 1972), aims at stimulating and encouraging educational innovations linked to the problems of national development in the Asian region.

All projects and activities within the framework of APEID are designed, developed and implemented co-operatively by the participating Member States through their national centres which have been associated by them for this purpose with APEID.

The 20 countries in Asia and Oceania participating in APEID are: Afghanistan, Australia, Bangladesh, India, Indonesia, Iran, Japan, Lao People's Democratic Republic, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Republic of Maldives, Singapore, Socialist Republic of Viet Nam, Sri Lanka and Thailand.

The Asian Centre of Educational Innovation for Development (ACEID) has been established at the Unesco Regional Office for Education in Asia and Oceania in Bangkok to co-ordinate the activities under APEID and to assist the associated national institutions in carrying them out.

The aims of APEID are:

- to stimulate efforts of the Member States to improve the quality of life of the people through creating and strengthening national capabilities for the development and implementation of innovations in education, both formal and non-formal;
- to encourage the Member States to make all groups (students, teachers, parents, village and community leaders, administrative personnel and policy makers) aware of the need for relevant changes in education (both formal and non-formal) as an essential pre-requisite for the improvement of the quality of life of the people;
- to promote understanding and appreciation of the differences in educational practices and approaches of the Member States, and thereby contribute to international understanding and the creation of a new international economic order.